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## OVERVIEW
## THE FRESHMAN CLUSTER PROGRAM SELF-REVIEW REPORT

The cluster program was launched by Vice Provost Judith Smith in 1998-99 as a five-year initiative to engage freshmen in yearlong interdisciplinary courses that fulfill some of their general education requirements. This self review coincides with the end of this five-year period and is a response to Vice Provost Smith's request that the Academic Senate review the program, which, to date, has provided innovative instruction for 4234 freshmen, and engaged 73 faculty and 102 graduate student instructors.

The Academic Senate mandates the periodic review of academic programs for the purpose of maintaining and strengthening the quality of UCLA's curricula and instruction. These reviews provide departments, special programs (e.g., Honors Collegium, Summer Sessions, etc.), Academic Senate agencies, and senior administrators with information regarding a program's strengths and achievements, areas of weakness, and future plans and expectations. A review normally takes two years to complete and involves a period of self review by the program in question, as well as a site visit by a team of campus and extramural scholars.

This Self-Review Report has been prepared by members of the cluster administrative team in collaboration with the cluster faculty and members of the Office of Undergraduate Evaluation and Research in the Division of Honors and Undergraduate Programs.[1] It summarizes data collected over a five-year period, beginning in 1998-99 and ending in 2002-03. During 2003-04, the report will be reviewed by the General Education (GE) Governance Committee and the Undergraduate Council.

The report, in large part, adopts a similar framework to the annual assessments of the Freshman Cluster Program that were vetted by cluster faculty and agencies of the Academic Senate in the winter of 2000 and spring of 2001.[2] These reports assessed the experiences of students, graduate student instructors, and faculty who participated in the cluster program during the inaugural year (1998-99) and the second year of the program (1999-00). On the basis of comments from the College Faculty Executive Committee, the Academic Senate's General Education Governance Committee, and the Undergraduate Council, as well as cluster faculty, the assessment procedures for the cluster program were refined.

In addition to the three Senate groups mentioned above, the cluster administrative team received comments on the assessment process from external reviewers brought to campus by Provost Brian Copenhaver a Hewlett Foundation funded initiative. The four external reviewers who came to campus on April 25, 2001 were Assistant Professor Christopher Campbell (University of Washington), Vice Provost Frederick Campbell (University of Washington), Vice Provost Lynda Goff (UC Santa Cruz), and Associate Provost Wendy Katkin (SUNY Stony Brook). Their thoughtful comments reshaped aspects of the assessment process. The cluster team also received constructive comments on assessment from Shelia Tobias, a nationally renowned educational

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[1] The authors of this review are listed on the dedication page.

[2] Gray, M., Walker, A.A., Kendrick, M.G., and Levis, M. (2000). *Assessment of the general education cluster course experience: Year one a five-year study*. College of Letters and Science, University of California, Los Angeles.

Levis, M., Walker, A.A., and McKinney, K. (2001). *Assessment of the general education cluster course experience: Year two of a five-year study*. College of Letters and Science, University of California, Los Angeles.

consultant, who presented a faculty workshop on November 3, 2000 sponsored by the Hewlett Foundation.

A draft of the entire Self-Review Report was shared with the cluster coordinators at a meeting held on May 15, 2003. At this meeting, the coordinators discussed the draft and endorsed it for transmission to the Undergraduate Council.

The Freshman Cluster Self-Review Report is presented in seven sections designed to provide the reader with information about the background of the program, the development of its administrative team, the experiences of its various participants, and the program's overall strengths, weaknesses, and future aims. The seven sections are as follows:

***Section One—Background on the Freshman Cluster Program***

Section One presents an overview of the program and its goals, as well as a history of its development and implementation from 1996-97 to the present.

***Section Two—Administration of the Freshman Cluster Program***

Section Two addresses the challenges of administering the cluster program and also provides a comprehensive description of the program's administrative team, annual budget, and expenditures.

***Section Three—The Cluster Experience of Freshmen***

Section Three describes cluster students and analyzes their reasons for enrolling in clusters, as well as their perceptions of how these courses have affected their intellectual and social development. This section's findings are based on a freshman student database, five years of cluster student surveys, and interviews with students who dropped cluster courses.

***Section Four—The Cluster Experience of Graduate Student Instructors***

Section Four gives a profile of cluster graduate student instructors (GSIs) and an examination of their principal reasons for teaching in these courses. This section also analyzes the GSI role in developing cluster courses, their experiences designing and teaching freshman seminars, and the impact of cluster teaching on their intellectual development and progress to degree. The findings in this section are based on graduate student instructor focus groups and individual interviews that were conducted over a five-year period.

***Section Five—The Cluster Experience of Faculty Members***

Section Five describes cluster faculty and analyzes their motivations for participating in the program, their experience developing and teaching these courses, and their appraisal of the affect of cluster participation on their intellectual development, workload, and interactions with lower division students and GSIs. This section's findings are based on individual faculty interviews conducted over a three-year period.

***Section Six—Three Cluster Case Studies***

Section Six provides case studies for each of three clusters – *The Global Environment: A Multidisciplinary Perspective*; *Interracial Dynamics in American Culture, Society, and Literature*; and *Evolution of the Cosmos and Life.* These in-depth narrative accounts capture the uniqueness and complexity of each of these clusters and illustrate the faculty teams' approaches to designing and teaching these interdisciplinary courses for freshmen.

***Section Seven— Key Achievements and Ongoing Challenges***

Section Seven concludes the Self Review with an overall summary of the key achievements and ongoing challenges.

## SECTION ONE
## BACKGROUND ON THE FRESHMAN CLUSTER PROGRAM

Section One of the report presents an overview of the Freshman Cluster Program, its goals, and the development of the program from its origins in 1996-97 to the present.

### Description and Goals of the Freshman Cluster Program

#### *What is a Cluster Course?*

Clusters are yearlong courses that are only open to freshmen. As illustrated in Figure 1.1, students attend lecture courses and small discussion and/or laboratory sections during the fall and winter quarters. In the spring quarter, these same students enroll in one of a number of "capstone" seminars that build on their experiences in the first two quarters and challenge them to complete a substantive project of their own. Upon completion of the entire year, students receive 15 units of credit (honors credit if they are in College Honors and Honors Collegium credit for the spring), complete nearly a third of their required general education coursework, and satisfy both their general education seminar and Writing II requirements.

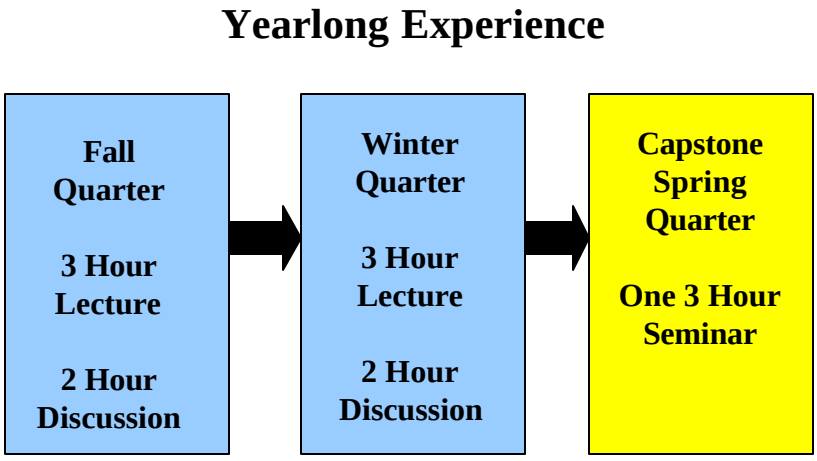


**Figure 1.1 A schematic representation of the yearlong structure of a cluster course over three academic quarters, and a summary of the general education credits accorded to the sequence.**

Currently, students enrolled in clusters satisfy general education (GE) requirements outlined in the GE curriculum adopted by the College in 2002. Clusters also receive Writing II credit, reflecting the fact that the freshmen enrolled in them engage in intensive writing in a number of disciplinary discourses.

In addition to being a year in length, clusters are collaboratively taught, interdisciplinary courses that are focused on topics of timely importance such as the "global environment" and "biotechnology and society." These courses are taught by cohorts of faculty and senior graduate student instructors (GSIs) from departments and schools across campus, and they are designed to introduce freshmen to the ways in which different disciplines address common problems.

Figure 1.2 shows how freshmen in the *Interracial Dynamics* cluster in 1998-99 and 1999-00 were introduced to the question of race in America by a collaborative team of faculty drawn from the School of Law, the History and English Departments, and the interdepartmental programs in African and Asian American Studies.

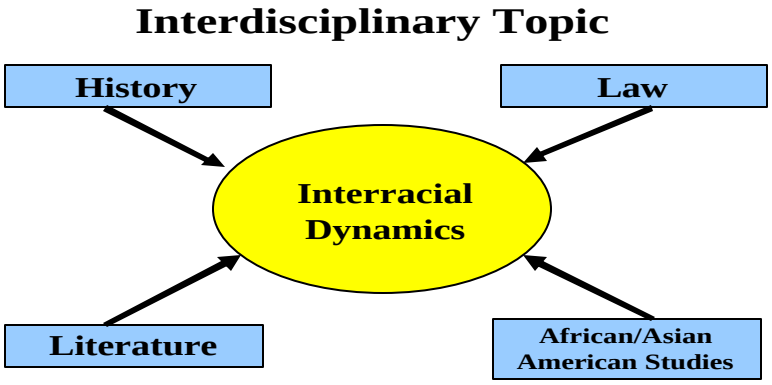


**Figure 1.2 The disciplinary components of the cluster course that provided an interdisciplinary perspective for students in the cluster on interracial dynamics during 1998-2000**

While no two clusters are completely alike in course content and instructional methods, they all include four groups of participants. As illustrated in Figure 1.3, each cluster consists of a student audience of anywhere from 120 to 160 freshmen, a teaching cohort of three to four faculty members and three to six graduate student instructors (labeled T.A.s here), and an instructional support network, including the cluster administrative team, librarians from the undergraduate library (College Library), Residential Life representatives, and Writing Programs consultants. In fall and winter quarters, faculty members lecture to the whole student audience, and GSIs lead weekly discussion sections. In the spring, lectures and discussion sections are replaced by small seminar courses offered by a subset of the faculty members and GSIs. These seminars enroll an average of 20 students each.

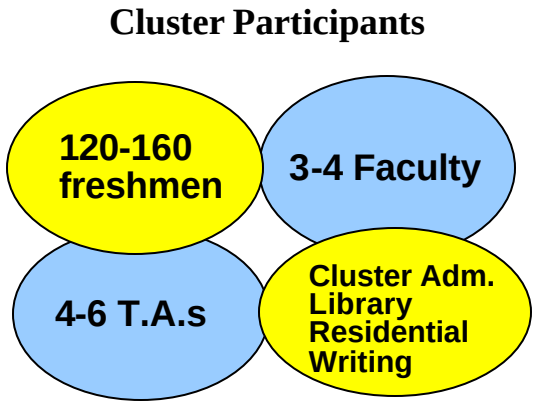


**Figure 1.3 Participants in a typical freshman cluster course and the various support staff who work with the faculty, TAs and students**

***Programmatic Goals of the Freshman Cluster Program***

The Freshman Cluster Program has four goals based on a set of recommendations that were made by a faculty-student general education workgroup in 1994-95. These goals are:

- *Interdisciplinary Teaching and Learning*. To offer yearlong courses that challenge freshmen to understand complex and controversial issues from select disciplinary perspectives.
- *Foundational Academic Skills*. To strengthen skills—critical thinking, problem solving, rhetorical effectiveness, creative expression—that give freshmen the tools necessary for success in a research university environment and in a rapidly changing world.
- *Capstone Spring Seminars*. To offer a spring capstone seminar experience that challenges freshmen to expand on the knowledge and skills acquired during the first two quarters of the cluster and to complete a substantive project of their own.
- *Yearlong Learning Communities*. To create a community of learners among cluster faculty, GSIs, and freshmen, through yearlong academic and social experiences occurring both in and out of the classroom.

To achieve these four goals, a number of objectives were set for each of the participant groups.

*The Cluster Administrative Team*

From its inception, it was evident that supporting, administering, and monitoring a collection of yearlong courses with mixed instructional cohorts and a highly ambitious agenda of pedagogical aims would pose a number of challenges. To address these challenges, an administrative support team was established to:

- Engage faculty and graduate student instructors across campus in the development and implementation of yearlong interdisciplinary courses for freshmen.
- Design, implement, and support an Academic Senate oversight and assessment process aimed at ensuring that freshman clusters adhere to a clearly defined and consistent set of general education goals and practices.
- Mount and support a program capable of providing up to 40% of the UCLA's freshman class with the opportunity to enroll in a cluster by 2004-05.

*Freshman Students*

The cluster program was initiated to assist UCLA's incoming freshmen with their transition from high school to college. As such, clusters aim to provide these students with a cornerstone experience that will provide them with the skills and general knowledge they will need to succeed both at UCLA and in their future capacities as citizens and professionals. To achieve these aims the cluster program has worked to help freshmen:

- Grasp complex interdisciplinary material and understand the contributions of distinct disciplinary perspectives to the subject matter.
- Strengthen such academic skills as critical thinking, problem solving, rhetorical effectiveness, and creative expression.
- Participate in learning communities led by distinguished ladder faculty that encompass not only in-class but also out-of-class learning experiences.

*Graduate Student Instructors*

The cluster program seeks to provide UCLA's most experienced doctoral students with an advanced instructional experience that gives them both yearlong financial support and the opportunity to:

- Engage in interdisciplinary teaching and innovative pedagogical practices.
- Design and teach a seminar that is based on their own scholarly research and cluster experiences during the fall and winter quarters.
- Participate in an intellectual community with motivated freshman students, distinguished faculty from programs and departments across campus, and graduate student colleagues in a wide array of disciplines.

*Faculty*

The ultimate success of the cluster program is predicated on the engagement of UCLA's distinguished scholar-teachers in a collaborative teaching venture aimed at demonstrating to freshman students how different disciplines address a common problem. To achieve this aim, faculty must work together to:

- Design and deliver a cohesive, integrated course that clearly conveys to a freshman audience the ways in which different disciplines approach a shared subject matter.
- Develop assignments and class activities that encourage students to improve certain academic skills necessary for learning in a research university.
- Engage in a collaborative teaching process that provides the opportunity to become learners as well as teachers in a community of scholar-teachers.

**Size and Scope of the Freshman Cluster Program: Fall 1997 to Spring 2003**

Since the inception of the program in 1997-98, when one cluster was offered, a total of ten cluster courses have been taught, involving a total of 4234 students, 102 graduate student instructors, and 73 faculty. Table 1.1 on the following page summarizes the offering of cluster courses during the five years under review. The chart does not show the first cluster offering in 1997-98, i.e., *The Global Environment: A Multidisciplinary Perspective*, because at that time it was regarded as a test run by its sponsor, the Institute of the Environment. Table 1.1 gives the title of each cluster, the year or years in which each of the clusters were offered, the student enrollment, and the numbers of graduate student instructors and faculty responsible for teaching. A complete list of the cluster faculty is in Appendix A.

In its five year history, the cluster program has offered 196 capstone spring seminars. Forty percent of these seminars were taught by UCLA faculty and 60% were offered by the program's GSIs. The seminars constitute a vital feature of the clusters, offering students with a common cluster background the opportunity to deepen their connections with the material and with each other while producing a substantive final project. The topics of these seminars have ranged over a wide array of subject matter including:

- *The Search for Extraterrestrial Life in the Universe*
- *The Color of Violence: The Meanings & Significance of Racial Violence in U.S. History*
- *The History of Environmental Justice*
- *Genetics and Culture: From Molecular Music to Transgenic Art*

- *Why Do Men Have Nipples? And Other Explorations into the Evolution of the Human Animal*
- *The Evolution of Empty Space, from Aristotle to the Accelerating Universe*
- *Right Out of the Sixties: Conservative Politics During a Radical Decade*
- *Evil Empires? Transnational Corporations in a Global Economy*

All cluster classes are listed in the *UCLA Catalog* and in the *Schedule of Classes* under the heading of General Education Clusters. Each cluster sequence has it own course number, for example, the cluster on *Evolution of Cosmos and Life* is numbered 70A, 70B and 70CW. The W denotes Writing II credit, which all clusters have carried since Fall 2002. Beginning with the 2001-02 academic year, the spring seminar carried Honors Collegium credit. One cluster, *Global Environment*, has a multiple listing under the Institute of the Environment, and its course numbers are M1A, M1B, and M1CW.

One additional course appears under the General Education Clusters listing. This course, GE 97A *Reading the Cosmos*, was created to allow sophomores who completed a sequence to continue the cluster experience in a 1-unit seminar. To date, two of these sophomore seminars have been offered, both by Adjunct Professor K. C. Cole who taught in the *Cosmos* cluster.

The program has grown, along with its funding, from four clusters offered in the first two years (1998-99 and 1999-00) to six clusters offered in 2000-01, seven in 2001-02, eight in 2003-04, to the ten clusters that will be offered in 2003-04 (not listed in Table 1.1).

**Table 1.1 Profile of the Ten Freshman Clusters Taught in the First Five Years**

| | 98-99 | 99-00 | 00-01 | 01-02 | 02-03 | *Totals* |
|---|---|---|---|---|---|---|
| ***The Global Environment: A Multidisciplinary Perspective*** | | | | | | |
| Number enrolled as of Fall Quarter | 105 | 130 | 166 | 168 | 164 | **733** |
| Number of Faculty | 5 | 5 | 6 | 6 | 7 | **(12)*** |
| Number of Graduate Student Instructors | 3 | 4 | 4 | 4 | 4 | **19** |
| ***Interracial Dynamics in American Culture, and Society and Literature*** | | | | | | |
| Number enrolled as of Fall Quarter | 120 | 131 | 138 | 176 | 174 | **739** |
| Number of Faculty | 4 | 5 | 3 | 4 | 5 | **(12)** |
| Number of Graduate Student Instructors | 4 | 4 | 4 | 5 | 5 | **22** |
| ***The History of Social (or Modern) Thought*** | | | | | | |
| Number enrolled as of Fall Quarter | 154 | 152 | 154 | 164 | 168 | **792** |
| Number of Faculty | 5 | 5 | 6 | 5 | 5 | **(12)** |
| Number of Graduate Student Instructors | 4 | 4 | 4 | 5 | 5 | **22** |
| ***Perception and Illusion in Psychology, Literature, and Art*** | | | | | | |
| Number enrolled as of Fall Quarter | | | 163 | | | **163** |
| Number of Faculty | | | 5 | | | **5** |
| Number of Graduate Student Instructors | | | 6 | | | **6** |
| ***The United States, 1963-74: Politics, Society, and Culture*** | | | | | | |
| Number enrolled as of Fall Quarter | | | 120 | 170 | | **290** |
| *Number of Faculty* | | | 4 | 4 | | **(4)** |
| Number of Graduate Student Instructors | | | 3 | 5 | | **8** |
| ***Towards a World Economy: Perils and Promises of Globalization*** | | | | | | |
| Number enrolled as of Fall Quarter | | | | 127 | 140 | **267** |
| Number of Faculty | | | | 4 | 4 | **(6)** |
| Number of Graduate Student Instructors | | | | 4 | 6 | **10** |
| ***Work, Labor, and Social Justice in the U.S.*** | | | | | | |
| Number enrolled as of Fall Quarter | | | | | 128 | **128** |
| Number of Faculty | | | | | 4 | **4** |
| Number of Graduate Student Instructors | | | | | 3 | **3** |
| ***Evolution of the Cosmos and Life*** | | | | | | |
| Number enrolled as of Fall Quarter | 143 | 146 | 120 | 170 | 158 | **737** |
| Number of Faculty | 4 | 4 | 5 | 5 | 5 | **(11)** |
| Number of Graduate Student Instructors | 4 | 2 | 3 | 3 | 3 | **15** |
| ***Biotechnology and Society*** | | | | | | |
| Number enrolled as of Fall Quarter | | | | | 139 | **139** |
| Number of Faculty | | | | | 4 | **4** |
| Number of Graduate Student Instructors | | | | | 5 | **5** |
| ***Frontiers in Human Aging: Biomedical, Social, and Policy Implications*** | | | | | | |
| Number enrolled as of Fall Quarter | | | | 121 | 126 | **247** |
| Number of Faculty | | | | 3 | 3 | **(3)** |
| Number of Graduate Student Instructors | | | | 3 | 3 | **6** |
| **Total Number of Freshmen** | **522** | **559** | **861** | **1095** | **1197** | **4234** |
| **Total Number of Faculty** | **18** | **19** | **29** | **31** | **36** | **(73)*** |
| **Total Number of Graduate Student Instructors** | **15** | **14** | **24** | **29** | **34** | **(102)*** |

* The number in parenthesis represents the number of "unduplicated" faculty and GSIs members who participated in the clusters. For example, 12 different faculty participated in *Global Environment* over the five years it has been taught, but the faculty headcount tallied each year adds to 29. In total, 73 faculty have taught in the cluster program since 1998-99, working with 102 GSIs and 4,234 freshmen.

## History of the Freshman Cluster Program[3]

### *A Proposal for Change*

In 1994-95, the Provost of the College, Brian Copenhaver, appointed a faculty-student workgroup to examine the general education curriculum at UCLA. After two years of deliberation, which included a campus-wide Hewlett Foundation sponsored "Forum on General Education," as well as extensive consultation with students, faculty, chairs, deans, and others, this committee submitted in June 1997 a proposal for curricular reform entitled *General Education at UCLA: A Proposal for Change.* This document recommended that UCLA undertake a fundamental change of its general education curriculum by making its requirements "simpler, fewer, more coherent, and clearer in purpose than is currently the case."[4] The proposal also called for GE courses that would strengthen the basic skills of first-year students (e.g., writing and critical thinking), introduce them to the research and ideas of ladder faculty, and expose them to inquiry-based learning, seminars, and interdisciplinary study.

The centerpiece of the *Proposal for Change* was the idea of requiring every freshman student at UCLA to enroll in a yearlong sequence of courses called the *first-year cluster*. As envisioned by the workgroup, each cluster course would be devoted to a broad topic (such as the environment) and would be grounded in a set of pedagogical principles, which would emphasize:

- *Interdisciplinarity*. Teaching and scholarship that covers multiple areas of knowledge and different ways of knowing, and that attempts to demonstrate how various disciplines converge and diverge in their approaches to common problems.
- *Best Practices*. Participation in activities such as intensive discussion, inquiry-based learning, group work, primary text analysis, research, interdisciplinary study, and seminars that have been demonstrated to foster both student learning and good teaching.
- *Intellectual Skills*. Learning how to think critically, deliver reasoned and persuasive oral and written arguments, identify, acquire and use the knowledge necessary to solve problems, and evaluate information both traditional and digital.
- *Learning Communities*. Developing a sense among first-year students that they and their instructors are part of a common intellectual community, which encompasses both in-class and out-of-class teaching and learning experiences.

The workgroup also proposed embedding these educational aims into the very organizational fabric of the cluster courses. To ensure interdisciplinarity, for example, clusters would be taught by collaborative teams of ladder faculty and senior graduate student instructors drawn from a number of different disciplines and departments across campus. During the fall and winter quarters, the faculty members of these teams would introduce freshmen to their research and ideas in large lecture classes, while their graduate student instructor colleagues would work on student intellectual skills in small discussion sections and/or labs. Best practices would be further integrated into the clusters by having their students enroll during the spring quarter in one of a number of small capstone seminars (limited to 20 students each), which would deal with topics

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[3] Much of the material used in this section is taken from the monograph *Creating New Communities of Learning at UCLA: An Institutional Transformation in Progress, 1993-2002*. Kendrick, M.G., Blackmar, L., Levis, M., Walker, A., and Smith, J.L. (2001). Higher Education Research Institute, University of California, Los Angeles.

[4] Berenson, E., Blackmar, L., Morris, M. and Smith, J.L. (1997). *General Education at UCLA: A Proposal for Change*. College of Letters and Science, University of California, Los Angeles. Page vii.

related to the overall themes of the individual cluster courses. These seminars would be taught by both faculty and cluster GSIs; in these seminars, students would be able to expand on the knowledge and skills acquired during their first two quarters, while also continuing to take part in intensive discussions, debates, research, and writing exercises.

In addition to strengthening freshman intellectual skills and introducing them to interdisciplinary scholarship and a wide range of best practices, the workgroup envisioned the clusters as a means of establishing a learning community that would bring together students, GSIs, and faculty in a common intellectual enterprise. Towards that end, the workgroup recommended situating the proposed clusters in the residence hall area of campus and training counseling assistants, peer facilitators, and others responsible for student support to work directly with cluster participants. Other suggestions for cluster-centered residence hall events included presentations and debates by journalists, political leaders, artists, and UCLA students and faculty; visits to museums and other cultural centers; dinners; film and media presentations; field trips; and trips to concerts, plays, and films.

Finally, to ensure that clusters would adhere to a clearly defined and consistent set of general education goals and practices, the workgroup recommended that some kind of campus-wide general education "authority" be established. This authority would be comprised of faculty who would be responsible for the monitoring of general education courses at regular intervals. To assist this body in its task, the workgroup recommended the establishment of a systematic means of assessing the new general education curriculum. As envisioned in the proposal, information gathered from such an assessment would provide useful feedback and guidance for the improvement of courses, as well as help to inform the ongoing campus discussion and decision-making about general education reform.

### *Campus Review and Reaction to the Cluster Proposal*

The proposal for a cluster-based general education curriculum generated considerable discussion within the campus community. Faculty reviewed the workgroup's proposal in College departmental meetings and in the Faculty Executive Committees for the professional schools. This review process also included undergraduate student focus groups and conversations with alumni, Academic Senate committee chairs, and national experts on general education. During this period of campus-wide deliberation, it soon became evident that the idea of requiring all first-year University students to enroll in yearlong cluster courses was the most contentious of the recommendations put forth by the workgroup. Some of the economic, pedagogical, and logistical concerns that faculty voiced with regard to the cluster proposal were as follows:

*Economic Concerns*

- A cluster-based general education curriculum would force smaller departments to reduce or even eliminate their general education offerings, which would subsequently reduce the departmental instructional workloads that generate the funds to support graduate students with teaching assistant appointments.
- Only departments with large faculty contingents would be able to participate fully in a GE cluster program.
- The program would be too costly and too experimental to be implemented without a pilot study.

*Pedagogical Concerns*

- Incoming freshmen lacking any substantive disciplinary foundation would be unable to handle the demands of interdisciplinary work.

- Cluster teaching teams would not know how to integrate their different disciplinary perspectives together so as to give freshmen a clear idea of how different disciplines working together can address common problems.
- A cluster-based general education curriculum that was interdisciplinary in its focus would reduce the exposure of freshmen to discipline-based instruction and thereby substantially reduce the breadth of their general education experience.

*Logistical Concerns*

- Clusters would be unable to attract the necessary complements of tenure-track faculty or experienced graduate student instructors. This would be particularly problematic with faculty and GSIs in the sciences due to their reliance on research grants and their limited teaching loads.
- Clusters would draw away many departments' best faculty members and negatively impact their programs of study. This possibility was a matter of particular concern to smaller departments because they would not be able to spare any of their ladder faculty members to participate.
- Science departments were concerned that clusters would occupy too much "curricular space" during the freshman year when their students are required to take a considerable number of pre-major courses.
- First-year student demand might exceed the enrollment capacity in the new cluster courses.

***From a Proposed Requirement to an Elective Cluster Program for Freshmen***

The seriousness of these concerns might well have doomed the workgroup's first-year cluster proposal to the landfill of well-intentioned university committee reports and recommendations. However, a number of developments ensured that this would not be the case. The first of these was a decision by Vice Provost Smith, during the summer of 1997, to establish a five-year pilot cluster program that would be optional for freshman students and aimed at gauging the feasibility of this kind of lower division interdisciplinary teaching.

Two considerations figured prominently in the decision to launch an experimental cluster program. The first of these was the fact that a trial cluster course was already in the process of being developed and organized during the spring quarter (1997) by UCLA's newly organized Institute of the Environment. The Institute needed to develop general education courses to fulfill its mission as a center for interdisciplinary instruction, and the faculty responsible for developing the Institute's lower division courses believed that a yearlong cluster for freshman students suited their needs. With the support of the College, faculty of the Institute presented this pilot cluster to the Academic Senate at the end of spring 1997 and secured that body's approval to offer it in 1997-98. [5]

Provost Copenhaver and Vice Provost Smith were also successful at this time in securing funding for the purpose of launching a larger five-year cluster pilot program. On June 30, 1997, the last day of his 30-year tenure as Chancellor of UCLA, Charles E. Young formally pledged an annual allocation of new permanent money (up to two million dollars) that would be available at the beginning of the 1999-00 fiscal year for the specific purpose of supporting the College's new

[5] Entitled *The Global Environment: A Multidisciplinary Perspective*, this yearlong cluster course was designed by faculty from Civil Engineering, Geography, Atmospheric Sciences, History, Public Health, and Biology, with an eye toward introducing freshmen over the course of a year to the ways in which a number of different disciplines address the problem of environmental degradation.

general education program. Vice Provost Smith arranged to borrow against these pledged funds to pay for the inaugural cluster courses during the two intervening years (see D. Cluster Budget).

One final development that proved critical to the launching of the cluster pilot program was the decision in 1997 by UCLA to choose general education as one of three topics (along with diversity and performance indicators) to test a new method of reaccredidation by the Western Association of Schools and Colleges (WASC). During the WASC review sessions on general education, there were intensive discussions about the proposed pilot cluster program among College administrators, members of the general education workgroup, faculty engaged in cluster development, and Academic Senate leaders. This interaction helped to heighten institutional awareness of and support for the College's plan to develop and offer a number of cluster courses aimed at exploring the strengths and weaknesses of first-year interdisciplinary courses for freshmen students.

The final report by the WASC team praised UCLA's efforts to improve general education. In particular, they singled out the proposed cluster program as an example of the ways in which the College was moving in directions recommended by the Boyer Commission in its report *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*:[6]

> *It is impressive to see how much UCLA's new model of undergraduate education has anticipated the recommendations of the Boyer Commission Report, Reinventing Undergraduate Education. Both that report and the UCLA proposal focus on the importance of a strong freshman foundation of interdisciplinary courses taught by teacher-scholars. Both also emphasized the need for teaching undergraduates critical thinking and writing and the importance of engaging in active learning with strong academic communities (WASC, 1998).*

In addition to providing important external validation for the College's efforts to launch a pilot cluster program, the WASC report urged the Academic Senate to implement the workgroup's recommendations for a general education governance body and some way of integrating assessment into the reform effort. With these recommendations in hand, Provost Copenhaver and Vice Provost Smith collaborated with the Undergraduate Council of the Academic Senate to approve the formation of a General Education Governance Committee on May 8, 1998. During this same period, Vice Provost Smith also established a workgroup on cluster assessment and asked it to initiate a five-year assessment plan aimed at evaluating the experiences of the cluster participants.

**The Development of Twelve Cluster Courses in Five Years**

Following the launching of the *Global Environment*, the pilot cluster offered in 1997-98, the College solicited proposals during the fall of 1997 to establish a modest program of four cluster courses (which included the *Global Environment)* to be offered in 1998-99. The faculty response to the call for proposals was enthusiastic and out of the twelve that were submitted, the Vice Provost, in consultation with the Chair of General Education, Professor Edward Berenson, selected three for immediate development:

- *Interracial Dynamics in American Culture, Society, and Literature*

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[6] Members of the WASC team who focused on general education at UCLA were Frederick Campbell, Vice Provost and Dean of Undergraduate Education at the University of Washington; Louis Albert, Vice President of the American Association for Higher Education; and Sandra Kanter, Director of the College of Education of the University of Massachusetts.

- *The History of Social Thought*
- *Evolution of the Cosmos and Life*

By the spring of 1998, the faculty who had proposed these clusters had developed comprehensive course proposals, and in June 1998, the Academic Senate approved them along with the pilot cluster on the Global Environment that was currently being offered. In 1998-99, the new program was initiated with four cluster courses (Table 1.1), and during the next four years, the Vice Provost and the cluster administrative team worked with faculty from all areas of campus to develop eight more cluster courses. This was done to ensure that at least 40% of the UCLA's entering freshman class would have the opportunity to take a cluster course, as well as to guarantee that when some of the cluster courses were discontinued there would be new clusters available.

Two new clusters were approved in the winter of 2000 and taught in 2000-01 for the first time:

- *The United States 1963-1973: Politics, Society, and Culture*
- *Perception and Illusion: Cognitive Psychology, Literature, and Art*

Two more were approved in the winter of 2001 and taught in 2001-02 for the first time:

- *The Frontiers of Human Aging: Biomedical, Social, and Policy Perspectives*
- *Towards a World Economy: The Perils and Promise of Globalization*

Three were approved in 2002:

- *Biotechnology and Society*;
- *Work, Labor, and Social Justice in the United States*
- *Inside the Performing Arts: Interdisciplinary Explorations of Performance in Society and Culture*

Of these courses, two (*Biotechnology and Society* and *Work, Labor, and Social Justice in the United States*) were taught for the first time in 2002-03. The third (*Inside the Performing Arts)* was postponed until 2003-04 because of the untimely and tragic death of one of the key faculty members in that cluster's teaching team.

And, finally, one new cluster was approved in the winter of 2003 and will be taught for the first time in 2003-04:

- *Politics, Society, and Urban Culture in East Asia*

The lengthy process required to develop a new cluster is explained in the following section of the report. Given the time needed to develop a cluster, it is expected that once approved a cluster will be offered for at least two years. As indicated in Table 1.1, the four original clusters have been taught annually since 1998-99, and all four will be offered again in 2003-04. Of the two cluster courses approved in 2000, one (*Perception and Illusion*) was taught only once (with a promise from the faculty to return) and the other (*The United States 1963-1973)* was taught for two years (2000-01 and 2001-02), took a year's leave, and will be taught again in 2003-04. Both clusters approved in 2001 were offered for two years (2001-02 and 2002-03), and one (*Aging*) will return in 2003-04, while the other (*Globalization*) will not be taught in 2003-04. Finally, the two clusters approved in 2002 (*Biotechnology* and *Work*) will return in 2003-2004.

For cluster courses with multiple offerings, the membership of the teaching teams often change, typically every two years or in some cases every year. For some clusters, a change in faculty has resulted in a substantial reworking of the course's overall structure and aims so as to more closely mirror the expertise of the teaching team's new members. This is illustrated quite clearly in the case study submitted by Dr. Jeffrey L. Decker for Section Six of this report. In that study, Dr. Decker discusses how changes in the faculty instructional cohort of the *Interracial Dynamics* cluster resulted in a reconfiguration of the course's approach to the question of race in America. In

other clusters, such as *Global Environment* and *Evolution of the Cosmos and Life*, changes in the personnel of the teaching cohorts have not substantially affected either the content or the overall interdisciplinary approach of the course. Case studies on these clusters have also been included in Section Six.

## SECTION TWO
## ADMINISTRATION OF THE FRESHMAN CLUSTER PROGRAM

From its inception, it was evident that supporting, administering, and monitoring a collection of yearlong courses with mixed instructional cohorts and a highly ambitious agenda of pedagogical aims would pose a number of challenges. To address these challenges, an administrative support team was established to:

- Engage faculty and graduate student instructors across campus in the development and implementation of yearlong interdisciplinary courses for freshmen.
- Design, implement, and support an Academic Senate oversight and assessment process aimed at ensuring that freshman clusters adhere to a clearly defined and consistent set of general education goals and practices.
- Mount and support a program capable of providing up to 40% of the UCLA's freshman class with the opportunity to enroll in a cluster by 2004-05.

The ways in which these administrative challenges were addressed are discussed in the sections that follow.

### Development of a Cluster Administrative Team

Vice Provost Smith envisioned the administration of the clusters to be a joint partnership between her office and the various departments whose faculty and GSIs would be participating in the new courses. There was also an expectation on Vice Provost Smith's part that this relationship would be a rather decentralized affair in which a small administrative staff would oversee the cluster initiative's budget and provide a measure of logistical support to the faculty who would be creating and developing the new courses. During the first year of the cluster initiative, however, a number of challenges made it readily apparent that departments and faculty were going to need considerably more central administrative support than originally anticipated. Among these challenges were:

- The inability of individual departments to provide systematic administrative support (e.g., course scheduling, faculty and GSI hiring, learning community activities, etc.) for interdisciplinary courses with interdepartmental instructional cohorts.
- The difficulty of identifying a campus-wide cohort of faculty members who were interested in developing cluster courses and could sustain their involvement in this process in the face of multiple, and often competing, responsibilities for research, teaching, and university service.
- The need for graduate student instructor training and mentoring in interdisciplinary teaching, as well as the necessity of ensuring that cluster GSI appointments and working conditions were in compliance with the UCLA/SAGE agreement.
- The lengthy, complicated, and rigorous process developed by the Academic Senate for cluster course approval.
- The design and administration of cluster assessment survey instruments, protocols, and reports.

To address these issues, Vice Provost Smith formed a cluster administrative team composed of two staff members, three instructional coordinators, and an evaluation coordinator to oversee the assessment of the program. The composition of this team and its responsibilities are as follows:

1. *Director of Undergraduate Initiatives* (Lucy Blackmar): A full-time staff member who works directly with the Vice Provost for Undergraduate Education to:
   - Supervises cluster budgetary and personnel matters;
   - Plans future cluster development;
   - Coordinates linkages between clusters and other undergraduate curricular initiatives at UCLA (e.g., Writing II, information literacy, and general education reform); and
   - Oversees all logistical coordination for clusters.
2. *Instructional Coordinators* (M. Gregory Kendrick, Cluster Program Coordinator; Sally Gibbons, Cluster Instructional Coordinator, and Jeffrey L. Decker, Cluster Instructional Coordinator): Doctoral level, discipline-based scholars with significant teaching experience who handle the following administrative and instructional tasks in the clusters:
   - Identify and recruit faculty cohorts to both design and teach cluster courses;
   - Shepherd cluster course proposals through the Senate approval process;
   - Train and mentor graduate student instructors so that they are prepared to supervise and teach cluster discussion sections and spring seminars; and
   - Provide instructional support in clusters by giving lectures, supervising discussion sections, and designing and offering spring seminars.
3. *Evaluation Coordinator* (Karen McClafferty Jarsky): Doctoral level specialist in educational research who carries out the following cluster evaluation activities:
   - Provides evaluation expertise and project leadership to produce annual freshman cluster assessments and program reviews;
   - Coordinates the quarterly student evaluations of the clusters; and
   - Investigates innovative undergraduate pedagogical theory and practice.
4. *Management Services Officer* (Angelina Hamner Arcuri): A full-time staff member who:
   - Assists in the monitoring and management of cluster budgets;
   - Oversees cluster personnel transactions; and
   - Coordinates cluster logistical and scheduling needs.

In addition to establishing a cluster administrative team, Vice Provost Smith housed the new program with a number of other undergraduate instructional programs (e.g., Writing II, Freshman Seminars, etc.) in a new unit of the College's Division of Honors and Undergraduate Program, the Office of Undergraduate Education Initiatives.

**Development of an Instructional Support Network for Cluster Courses**

As noted in Section One, the cluster program seeks to provide freshmen with a learning community experience that strengthens their intellectual skills and introduces them to interdisciplinary approaches to teaching and learning. Achieving these aims involves a significant level of collaboration between the cluster's administrative and instructional teams and UCLA's College Library, Office of Instructional Development (OID), Office of Residential Life, Center for Experiential Education and Service Learning (CEESL), and Writing Programs. This section addresses the many ways in which these different units have provided instructional support for the cluster program over the last five years.

***Powell College Library***

A key aim of the cluster program is to help freshmen acquire a high degree of information literacy that will allow them to identify and acquire the knowledge they will need to address a wide range of questions and topics, and also make critical and logical assessments of information in both traditional and digital formats. Over the last five years, the administrative and instructional cohorts of the cluster program have worked with the head of the College Library, Eleanor Mitchell, and her colleagues in UCLA's Information Literacy Initiative, to achieve this goal. As a result of this collaborative effort, each cluster course has been assigned its own reference librarian who works with faculty and GSIs to:

- Design information literacy and critical thinking exercises that are tied directly to the aims and objectives of each cluster's research and writing assignments.
- Organize and conduct information literacy sessions for cluster discussion sections and seminars.
- Develop information resource web pages for the lecture classes, discussion sections, and seminars of each cluster course.

***Writing Programs***

Improving and strengthening the writing skills of freshman students is one of the principal aims of the cluster program. Since the launching of the program in 1998, all of the clusters have required their students to do a number of writing assignments during the fall and winter quarters, as well as a substantial paper in the spring seminars. Students report in assessments of the clusters that they do considerably more writing than their counterparts in more traditional, single-quarter courses.

Given the intensive nature of writing in the clusters, the Writing II Implementation Committee voted unanimously at its April 22, 2002 meeting to allow students who complete an entire yearlong cluster sequence to earn credit for Writing II. To ensure that cluster writing assignments are compatible with Writing II criteria, writing instructors under the supervision of Bruce Beiderwell, Director of Writing Programs, are working with cluster coordinators in a consultative manner. These same instructors are also collaborating with the cluster administrative team to provide 11 hours of prescribed training to cluster GSIs in a series of intensive workshops and individual mentoring sessions during the fall and winter quarters of each academic year.

***Office of Instructional Development***

Over the last five years, the Office of Instructional Development (OID) has provided a wide range of grants and services to the cluster program. These included:

- A number of instructional improvement grants from 1999 to the present that provided faculty release time, GSR salaries, and course materials budgets for the development of new cluster courses. These grants also supported the efforts of faculty in continuing cluster courses to improve instruction through the development of innovative web-based resources.
- OID educational technology service units that provided cluster faculty and GSIs with instructional media equipment (video tapes, laserdiscs, DVDs, and films), technical assistance, and training in the use of various kinds of media systems for course lectures, assignments, and lab experiments.
- Mini-grants for cluster faculty and GSIs that enabled them to purchase films, audiotapes, and videotape programs for their classes, defray the costs of student field trips, and provide honoraria for distinguished experts visiting the clusters.

### *Center for Experiential Education and Service Learning (CEESL)*

One recent objective of the cluster program is to provide freshman students with experiential and service learning projects in which they can apply the knowledge and theory they learn in their lectures and discussion sections in a variety of settings outside the university. In 2001-02 and 2002-03, the faculty of the *Frontiers in Human Aging* cluster, in collaboration with the Executive Director of CEESL, Kathy O'Byrne, developed, implemented, and assessed a program that placed the cluster's students in some form of service learning experience in Los Angeles based non-profit organizations serving older adults or promoting issues related to the aging experience. These students spent a total of 20 hours spread out over a six-week period during the winter quarters of 2002 and 2003, conducted in-depth studies of the agencies in which they were placed, and presented their findings to their cluster colleagues at the end of the quarter.

During Spring 2003, two of the seminars offered by GSIs in the *Work, Labor, and Social Justice in the U.S.* cluster collaborated with CEESL to place 40 cluster freshmen in service learning experiences with organizations dealing with homelessness, affordable housing, welfare reform, and labor issues in the Los Angeles area. In addition to these seminars in the *Work* cluster, one of the seminars in the *Biotechnology and Society* cluster worked with CEESL to place 17 students in food banks run by APLA (Aids Project LA). Finally, CEESL and the instructional team of the *Global Environment* cluster are also discussing the idea of providing experiential and service learning opportunities through the course's spring satellite seminars.

### *Office of Residential Life*

One of the primary goals of the Freshman Cluster Program is to cultivate a learning community environment, particularly in and around the student residence halls. Working closely with Cheryl Sims, Assistant Director of Program Services for the Office of Residential Life, the cluster program has tried to achieve this objective in a number of ways over the last five years. First, a couple of clusters taught their lectures in the residential life area's Northwest Auditorium, a theater-in-the round type performance space, which met with mixed reviews from cluster faculty. In addition to this auditorium, a small number of discussion sections and spring seminars were also held in the two classroom spaces available in Covel Commons. Second, most cluster courses sponsored an array of social events in the residential life area. Most of these events centered on food or films – and sometimes both. For example, the Interracial Dynamics cluster makes evening movie screenings a required component of the course. Prior to each screening, students are invited to dine with cluster faculty and GSIs in one of the residential dining halls. This kind of event provides students an opportunity to interact with their teachers in a casual and informal setting conducive to learning outside the classroom.

While social activities such as BBQs and film festivals have been well-received by cluster students, finding functional classroom space in the residential life area of campus has been problematic. As early as 1997, Vice Provost Smith began addressing this issue by working with the Office of Residential Life to design a lecture hall in the new DeNeve Plaza Commons building to meet the needs of cluster courses. As envisioned by Vice Provost Smith, the Director of Residential Life, Alan Hansen, and the Director of UCLA Housing, Michael Foraker, this space was to be a large multi-media auditorium with smaller adjacent meeting rooms that would accommodate the instructional and social needs of the clusters. Though the DeNeve cluster auditorium was scheduled to be completed in the fall of 1999, construction problems delayed its opening until fall of 2002. Since the completion of the DeNeve auditorium, six of the eight clusters offered in 2002-03 were taught in the new auditorium to the great acclaim of faculty and students. To facilitate faculty access to the auditorium, special parking arrangements were made with UCLA Parking, and cluster faculty received permits for specially designated parking spaces adjacent to DeNeve.

**Development and Implementation of Cluster Courses**

The development of cluster sequences is a challenging task that moves through two phases, each lasting about 9-12 months:

- Phase I encompasses the "conceptualization and socialization" period of cluster course development. This phase involves the identification and organization of an "affinity group" of five or more faculty members from different departments and schools who share an interest in organizing a cluster around a given topic. Sometimes this process is initiated by faculty members and other times by members of the administrative team.
- Phase II can be described as a "development and implementation" period in which a faculty affinity group works with the cluster administrative team to develop a course proposal for review and approval by the relevant Academic Senate Committees. Following the Academic Senate's approval of a proposed cluster, a teaching team must be selected, a budget and syllabus needs to be prepared, and the graduate student instructors need to be hired and trained.

***Phase I—Conceptualization and Socialization***

To address the challenges posed by Phase I of the cluster development process, the College obtained a two-year grant (1999-01) from the William and Flora Hewlett Foundation grant to support its efforts to engage UCLA faculty in the development and teaching of freshman clusters. The funds from this grant were used to support the activities of a number of the aforementioned faculty "affinity groups." These groups were organized around topics of broad interdisciplinary interest that might serve as the basis of a yearlong cluster course, and provided with modest budgets ($1200 each) to support small on- and off-campus meetings, logistical needs, research, and outside speakers.

The College also used Hewlett funds to provide faculty with workshops on the challenges and benefits of interdisciplinary education, as well as web sites that allowed them to post information on their topics, membership, and activities. Throughout this conceptualization and socialization process, the instructional coordinators of the cluster administrative team assisted faculty in organizing their groups, managing their budgets, setting up their web sites, and organizing various workshops that brought them together with noted experts in the field of interdisciplinary education.

As a result of this Hewlett Foundation affinity group initiative, over 161 UCLA scholar-teachers from across campus participated in 14 cluster affinity groups. Out of these affinity groups, seven new cluster courses were developed and offered between 1998 and the 2003. These were:

- *The United States 1963-1974: Politics, Society and Culture*
- *Perception and Illusion: Cognitive Psychology, Literature and Art*
- *Frontiers in Human Aging: Biomedical, Social and Policy Perspective*
- *Towards a World Economy: The Perils and Promise of Globalization*
- *Biotechnology and Society*
- *Work, Labor and Social Justice in the U.S*
- *Inside the Performing Arts: Interdisciplinary Explorations of Performance in Society and Culture*

In addition to the affinity group initiative, the Humanities Division of the College applied for and received funding from the Freeman Foundation aimed at expanding undergraduate Asian studies at UCLA. One of the key goals of this program was the development of a cluster course that would

introduce freshmen to East Asian societies and cultures. During 2002-03, funds from the Freeman Foundation grant were used to develop the *Society, Politics, and Urban Culture in East Asia* cluster, which will be offered in 2003-04.

***Phase II—Development and Implementation***

During Phase II of the cluster development process, cluster instructional coordinators work closely with the faculty affinity groups to crystallize the themes of their proposed courses, identify their cluster teaching team members, prepare course proposals, and secure course approval from the appropriate Senate committees. It is also during this particular phase that cluster affinity groups normally designate one of their number to serve as the course's "coordinator." These faculty coordinators provide intellectual leadership for their clusters and are also responsible for identifying and recruiting cluster faculty and graduate student instructors. Coordinators also serve as liaisons to the College on all budgetary and logistical matters related to the course.

Following the approval of a new cluster, the College typically provides a course teaching release to the cluster's designated faculty coordinator, as well as FTE to hire and pay the course's graduate student instructors for preparatory work prior to the beginning of the academic year in which the cluster will be offered. This support allows the faculty coordinator to do the following:

- Recruit graduate student instructors for early orientation to the cluster program and training in interdisciplinary teaching;
- Become familiar with the disciplinary backgrounds, research interests, and teaching philosophies of the faculty and GSIs in the instructional team;
- Collaborate with the members of the instructional team to further refine the subject matter of the course and how it is to be integrated;
- Prepare the course syllabus and assignments; and
- Complete work on cluster web sites, residential life activities, and field trips.

To assist cluster graduate student instructors with their many responsibilities in these courses, the administrative team provides the following assistance:

- *A series of graduate student instructor orientation and training sessions during the spring quarter prior to the academic year in which a cluster is offered.* These sessions offer new cluster GSIs information about the freshman cluster program's history and aims, the characteristics of incoming freshmen, the cluster assessment process, instructional support services, and Writing II training.
- *Three seminar development workshops during the fall and winter quarters of the year in which they are teaching.* These workshops provide GSIs with information about such subjects as the development of seminar syllabi, the selection of course reading materials, the development of assignments, and the facilitation of in-class discussions.

**Oversight and Assessment of the Cluster Program**

***Oversight by Three Academic Senate Committees***

In order to ensure that both regular general education course offerings and clusters would adhere to a clearly defined and consistent set of general education goals and practices, a General Education Governance Committee was established on May 8, 1998 by the Undergraduate Council (UgC). This new body was a Senate/Administration committee jointly appointed by the Chair of UgC and the Provost of the College, and its charge was to advise the UgC and the Provost on all matters pertaining to general education at UCLA. This includes, "defining the values and purposes of GE

at UCLA; encouraging diversity, innovation, and the building of a vibrant intellectual community; and the systematic review, evaluation and improvement of general education."

With regard to freshman cluster oversight, the UgC charged the GE Governance Committee to advise the Vice Provost for Undergraduate Education on all cluster course proposals and to make recommendations for their approval to the College FEC. The UgC also made the evaluation and determination of the GE credit that each cluster course would carry a joint responsibility of both GE Governance and the UgC's Curriculum Committee. Finally, if a cluster course elects to carry Writing II credit, its writing assignments must be approved by the College's Writing II Committee. The Senate process that has been created over the last five years for the review and approval of cluster courses is as follows:

- Fall Quarter
  - Preparation and submission of detailed cluster course proposals to the GE Governance Committee (Deadline: December 1).
  - Committee recommendations to the Vice Provost for Undergraduate Education as to which cluster proposals merit further development and support in the following academic year.
  - Review of Governance Committee recommendations by the Vice Provost and selection of cluster proposals for development and support.
  - Official recommendation for course approval of selected cluster proposals by the GE Governance Committee to the College of Letters and Science Faculty Executive Committee (College FEC).
- Winter Quarter
  - January: College FEC review and approval of cluster course proposals for offering in the upcoming academic year.
  - February: Review and approval of GE credit requested for each cluster course proposal by the Curriculum Committee of the Undergraduate Council.
  - March: Review and approval of cluster courses for Writing II credit by the Writing II Implementation Committee.

***Cluster Assessment***

Assessing the general education clusters has always been regarded as a central element in the academic oversight of the program. Both the Western Association of Schools and Colleges (WASC) review team and the authors of the *Proposal for Change* called for some kind of assessment process that would inform UCLA about what was happening in the clusters and whether that experience was consistent with the aims and assumptions of the proposal. To achieve these ends, Vice Provost Smith established the Workgroup on General Education Cluster Assessment in 1998 and invited Special Assistant to the Executive Vice Chancellor, Maryann Gray, to serve as its chair.

This workgroup was asked to initiate a five-year assessment plan aimed at capturing and evaluating the experiences of cluster freshmen, graduate student instructors, and faculty. The group created an assessment framework and a series of research questions, as well as a methodology that included the use of surveys, individual interviews, focus groups, and an analysis of a student database. The first of the five-year assessment reports was prepared by this workgroup and presented to the Academic Senate in January 2000.

Responsibility for cluster assessment was transferred to the College's Office of Undergraduate Evaluation and Research (OUER), which was established in 1999. During 2000-01, the joint

efforts of both the cluster administrative team and the OUER produced *The Assessment of the General Education Cluster Course Experience: Year Two of a Five-Year Study.* In 2001-02, both offices began discussions regarding the Undergraduate Council review of the cluster program during 2002-03 and 2003-04. Also at this time, a full-time evaluation coordinator was added to the cluster administrative team to provide evaluation expertise and project leadership on annual freshman cluster assessments, program reviews, and other initiatives aimed at improving general education at UCLA.

## The Cluster Budget

### *Source of Funds*

In the spring of 1997, Chancellor Charles E. Young pledged two million dollars to be used, beginning in 1999-00, for undergraduate education, particularly for new initiatives. In the winter of 1998 Vice Provost Smith arranged to borrow against the pledged funds to sponsor the four inaugural cluster courses in the subsequent year (1998-99). In 1999-00, when the funds were given to the College, there were many pressing needs and the Provost agreed to provide an increasing amount over a five-year period. Accordingly, the cluster program was to start small and then grow steadily from four to ten clusters in five years. The goal was to offer enough cluster enrollment to accommodate about 40% of the freshman class of ~4,000. Table 2.1 shows the pattern of progressive funding for the cluster general funds from 1998-99 (the year of the loan) to 2002-03, the year in which the Provost's Office made its final installment to bring the cluster funds to a permanent budget allocation of $1.8 million.[7]

In addition to these funds, Provost Copenhaver provided salaries for individuals who eventually became the core of the cluster administrative team, and he provided funding for special events. The cluster program has also received general funds from other campus units, such as the Institute of the Environment and the School of Law to support course releases for members of their faculties. In addition, Vice Provost Smith, in collaboration with the Provost, sought supplemental funding from extramural sources, including the Hewlett Foundation. Table 2.1 summarizes the sources of funding for the Freshman Cluster Program during the five-year period under review; more details are provided in the bulleted footnotes underneath the table.

[7] The Writing II Program is currently funded at $250,000 and the Freshman Cluster Program is funded at $1,800,000; collectively these two program comprise the "initiatives for undergraduate education" supported by Chancellor Young's allocation in 1997.

**Table 2.1 Fund Sources for the Freshman Cluster Program**

| | 1998-999 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 5-yr Total |
|---|---|---|---|---|---|---|
| **Cluster General Funds** | **$650,000** | **$850,000** | **$1,150,000** | **$1,500,000** | **$1,800,000** | **$5,950,000** |
| **Other Campus General Funds** | **$81,432** | **$63,350** | **$94,666** | **$95,962** | **$90,051** | **$425,461** |
| *Institute of the Environment* | *$56,469* | *$63,350* | *$94,666* | *$95,962* | *$90,051* | *$400,498* |
| *School of Law* | *$19,753* | | | | | *$19,753* |
| *Winter Bruins (1 TA position)* | *$5,210* | | | | | *$5,210* |
| **Provost's Funds** | **$15,073** | | **$16,000** | **$80,957** | **$169,369** | **$281,399** |
| **Grants** | **$43,900** | **$39,497** | **$75,000** | **$106,085** | **$76,836** | **$341,318** |
| *Instructional Improvement Grants* | *$43,900* | *$39,497* | *0* | *$31,085* | *$6,312* | *$120,794* |
| *Hewlett Foundation* | | | *$75,000* | *$75,000* | *$10,730* | *$160,730* |
| *Howard Hughes Medical Institute* | | | | | *$30,614* | *$30,614* |
| *Freeman Grant – Asian Studies Cluster* | | | | | *$19,180* | *$19,180* |
| **Grand Total** | **$790,405** | **$949,847** | **$1,335,666** | **$1,783,004** | **$2,136,256** | **$6,995,178** |

- **Cluster General Funds**. This is the permanent allocation for the Freshman Cluster Program. The steady state will be $1,800,000 – the current funding level for 2003-04.
- **Other Campus General Funds.** These are funds obtained through the cluster program's partnerships with other campus schools and departments. For example, as part of the partnership with The Institute of the Environment (IoE), IoE provides course releases for faculty in the IoE who teach in the cluster. The School of Law and Asian Studies have made similar arrangements.
- **Provost's funds.** The Provost's funds have covered: 1) a small carry forward from Instructional Improvement funds during the cluster program's inaugural year; 2) a portion of Adjunct Professor K.C. Cole's salary over three years (2000-03) for her work in the *Evolution of the Cosmos and Life* cluster; 3) partial funding in 2002-03 for the Director of Undergraduate Education Initiatives who devotes a substantial portion of her efforts to the Freshman Cluster Program; and 4) full salary for Dr. Sally Gibbons, who was hired in 2001-02 to coordinate the Biotechnology cluster, and to provide other instructional support to clusters.
- **Grants.** The cluster program also supplements its budget with grants; these include intramural grants such as the Instructional Improvement Grants from OID or extramural grants from William and Flora Hewlett Foundation (P.I.s Provost Copenhaver and Vice Provost Smith), the Freeman Foundation (P.I. Dean Pauline Yu), and the Howard Hughes Medical Institute (HHMI; P.I.s Dean Frederick Eiserling and Vice Provost Smith). Grant funds are used for course development and occasionally for the delivery of teaching.

### *Distribution of Cluster Program Expenditures*

Cluster funds are used for three basic expenditures: faculty instruction, graduate student instructor support, and course expenses/administration. Table 2.2 summarizes expenditures for each of these three over the five-year period under review. These expenditures were charged against the General Cluster Funds and not other sources of funds itemized in Table 2.1. Details of annual cluster expenditures are provided in the bulleted footnotes directly below the table.

**Table 2.2 Annual Expenditures of the Freshman Cluster Program**

| | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03^ | 5-yr Total |
|---|---|---|---|---|---|---|
| **Faculty (51% of the 5-yr total)** | **$317,607** | **$361,433** | **$589,064** | **$657,830** | **$857,985** | **$2,783,919** |
| *Development* | *$65,211* | *$91,785* | *$50,344* | *$68,706* | *$122,900* | *$398,946* |
| *Faculty Course Releases* | *$190,493* | *$204,728* | *$400,661* | *$408,884* | *$419,750* | *$1,624,516* |
| *Lecturer Salaries* | *$58,946* | *$44,967* | *$97,068* | *$73,130* | *$211,252* | *$485,363* |
| *Writing II Consultants* | *$0* | *$0* | *$0* | *$0* | *$61,283* | *$61,283* |
| *Benefits* | *$2,957* | *$19,953* | *$40,991* | *$107,111* | *$42,800* | *$213,812* |
| **Graduate Student Instructors (33% of the 5-yr total)** | **$236,235** | **$221,897** | **$350,815** | **$450,701** | **$628,690** | **$1,888,338** |
| *Training & Development* | *$8,000* | *$12,000* | *$16,545* | *$19,105* | *$22,058* | *$77,708* |
| *GSI Salaries* | *$202,145* | *$195,580* | *$321,071* | *$408,884* | *$572,148* | *$1,699,828* |
| *Service- Learning Coordinators* | *$0* | *$0* | *$0* | *$5,752* | *$9,550* | *$15,302* |
| *Benefits* | *$3032* | *$2934* | *$4816* | *$6133* | *$8582* | *$25,497* |
| **Administration (16% of 5-yr total)** | **$99,227** | **$122,202** | **$128,472** | **$153,053** | **$280,595** | **$783,549** |
| *Course Materials* | *$18,200* | *$19,045* | *$26,458* | *$25,400* | *$37,000* | *$126,103* |
| *Instructional Coordinators* | *$33,432* | *$28,586* | *$42,192* | *$46,194* | *$79,197* | *$229,601* |
| *Staff Salaries* | *$30,422* | *$34,689* | *$58,069* | *$41,387* | *$111,304* | *$275,871* |
| *Adm. Supplies & Expenses* | *$10,000* | *$14,000* | *$17,050* | *$40,932* | *$30,400* | *$112,382* |
| *Benefits* | *$25,373* | *$44,927* | *$11,161* | *$24,540* | *$59,694* | *$165,695* |
| **Grand Total** | **$671,269** | **$724,577** | **$1,094,808** | **$1,286,985** | **$1,804,270** | **$5,581,909** |

^Expenditures for 2002-03 are projected expenditures.

- **Faculty.** Each faculty participant or writing consultant (Writing Programs) typically receives one course release for each quarter they participate in teaching (or consulting). Each faculty coordinator receives an additional course release or a summer stipend. Funds are also allocated for spring quarter course releases prior to the teaching of a new cluster to allow the faculty coordinators of new clusters time to develop course syllabi and materials, and to hire and integrate graduate student instructors into their cluster teaching teams. In a few cases, a summer stipend is provided to faculty members, who seek support to modify an existing cluster or plan a new one.
- **Graduate Student Instructors.** Cluster funds pay the salaries of graduate student instructors. GSIs are also paid a modest stipend to attend orientation sessions and seminar development workshops designed to prepare them for work in the cluster. Beginning in 2001-02, funds were used to hire graduate student coordinators to assist faculty in two clusters in coordinating community placements of students in service-learning projects. The coordinators are trained and supervised by the Center for Experiential and Service Learning
- **Administration.** Administrative costs include salaries for the administrative team, as well as costs arising from the ongoing cluster program assessment. Funds are also allocated to support activities of the GE Governance Committee, conference travel, publication of the annual cluster brochure and general supplies and expenses for the administrative offices. For course materials, the program pays for lecture room rental for clusters holding lectures on the Northwest Campus and allots each cluster an annual "supplies and expenses" budget of approximately $3,000, including funds for cluster T-shirts, cluster social events, and cluster field trips.

The summary of expenditures in Table 2.2 shows that nearly 85% of the cluster general funds go to support teaching, either by faculty or graduate student instructors. The other 15% supports class expenses and administration. During the past five years, nearly $2.8 million has been used to support faculty and $1.8 million has been used to support graduate student instructors. Most of these resources have been distributed to departments either in the form of course-release dollars or salaries for the support of graduate students.

### *Flow of Resources to Departments for Course Releases and Graduate Student Support*

To provide freshmen with the opportunity to learn from ladder faculty, the cluster program reimburses departments for faculty time spent teaching in the clusters. These funds flow to the departments in the form of course releases, which in turn enable departments to hire temporary replacement faculty. Typically, a course release is paid at the College base rate of Assistant Professor Level IV. Table 2.3 summarizes the course release allocations since the program's inception.

**Table 2.3 Course Releases to Campus Units Expressed as Temporary Faculty FTE***

| Campus Units | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 5-yr Total |
|---|---|---|---|---|---|---|
| **Humanities** | **1.17** | **0.33** | **2.00** | **1.00** | **1.00** | **5.50** |
| Comparative Literature | *0.17* | | | | | *0.17* |
| English | *1.00* | *0.33* | *2.00* | *1.00* | *0.33* | *4.66* |
| Writing Programs | | . | | | *0.67* | *0.67* |
| **Life Sciences** | **0** | **0** | **1.33** | **0.33** | **0.33** | **2.00** |
| OBEE | | | *0.33* | *0.33* | *0.33* | *1.00* |
| Psychology | | | *1.00* | | | *1.00* |
| **Physical Sciences** | **1.17** | **1.17** | **0.83** | **1.00** | **0.83** | **5.00** |
| Earth and Space Sciences | *1.00* | *0.67* | *0.50* | *0.50* | *0.33* | *3.00* |
| Physics and Astronomy | *0.17* | *0.50* | *0.33* | *0.50* | *0.50* | *2.00* |
| **Soci al Sciences** | **1.17** | **1.83** | **3.51** | **4.34** | **3.67** | **14.52** |
| Anthropology | | | *0.50* | *0.33* | *0* | *0.83* |
| Asian American | | *0.33* | | | *0.17* | *0.50* |
| Cesar Chavez Center | | | | | *0.50* | *0.50* |
| Economics | | | *0.17* | *0.67* | *0.67* | *1.51* |
| Geography | | | *0.17* | *0.33* | *0.33* | *0.83* |
| History | *0.17* | *1.17* | *1.33* | *1.00* | *0.33* | *4.00* |
| Institute-Industrial Relations | | | | | *0.50* | *0.50* |
| Political Science | | | *0.84* | *0.84* | *0.33* | *2.01* |
| Sociology | *1.00* | *0.33* | *0.50* | *1.17* | *0.84* | *3.84* |
| **Professional Schools** | **0.17** | **0.17** | **0.34** | **1.67** | **2.00** | **4.35** |
| Education | | | | *0.17* | | *0.17* |
| Law | *0.17* | *0.17* | | | | *0.34* |
| Medicine | | | *0.17* | *1.00* | *1.17* | *2.34* |
| Social Welfare | | | *0.17* | *0.50* | *0.50* | *1.17* |
| Theater | | | | | *0.33* | *0.33* |
| **Total Faculty FTE** | **3.68** | **3.50** | **8.01** | **8.34** | **7.83** | **31.36** |

***** One faculty course release for one quarter = 0.17 FTE; dollar value is based on the salary for an Assistant Professor, Level IV; the average costs for 0.17 = ~$10,500.

Data in Table 2.3 show that over the past five years, departments in the Division of Social Sciences have been compensated for more course releases than any other UCLA unit. Within this division, the departments of History and Sociology received over 50% of the funds. The Department of English has been compensated more than any other single department, at the equivalence of 4.66 temporary faculty FTE in course release compensation.

The data also show that five professional schools have received compensation, totaling 4.35 faculty FTEs. As predicted by faculty in the initial review of the cluster program in 1997, faculty in small departments, particularly those in the Division of Humanities have not participated, despite the availability of course-release compensation. The reason for this is due largely to the fact that small

departments find it difficult to release their faculty to participate in yearlong courses. Faculty members in small departments often teach one-quarter courses in the Honors Collegium but commitments for longer than one quarter are rare. The cluster team would like to engage faculty members in these departments to participate but has identified no solution to this challenge.

The cluster program hires and trains the GSIs that will form a vital part of a cluster's teaching teams. Table 2.4 summarizes the number of GSI positions supported by the cluster program by division and department during the past five years.

**Table 2.4 Graduate Student Instructor Positions Funded by Cluster Program Funds**

| Departments | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 5-yr Total |
|---|---|---|---|---|---|---|
| **Humanities** | **14.0** | **20.0** | **18.0** | **18.5** | **18.0** | **88.5** |
| Comp. Lit | | | *3.0* | *6.0* | *6.0* | *15.0* |
| English | *14.0* | *20.0* | *15.0* | *6.5* | *9.0* | *64.5* |
| Germanic Languages | | | | *6* | | *6.0* |
| Philosophy | | | | | *3.0* | *3.0* |
| **Life Science** | **0** | **0** | **9.0** | **3.0** | **9.0** | **21.0** |
| OBEE | | | *3.0* | *3.0* | *6.0* | *12.0* |
| Physiological Science | | | | | *3.0* | *3.0* |
| Psychology | | | *6.0* | | | *6.0* |
| **Physical Science** | **15.0** | **6.0** | **6.0** | **6.0** | **6.0** | **39.0** |
| Earth & Space Science | *15.0* | *6.0* | *3.0* | | *3.0* | *27.0* |
| Astronomy & Physics | | | *3.0* | *6.0* | *3.0* | *12.0* |
| **Social Science** | **7.5** | **13.0** | **25.5** | **45.5** | **42.0** | **133.5** |
| Anthropology | | | *4.5* | *3.0* | | *7.5* |
| Economics | | | | *3.0* | *3.0* | *6.0* |
| Geography | | | *3.0* | *12.0* | *3.0* | *18.0* |
| History | | *7.0* | *12.0* | *15.0* | *21.0* | *55.0* |
| Political Science | | *3.0* | *6.0* | *9.0* | *6.0* | *24.0* |
| Sociology | *7.5* | *3.0* | | *3.5* | *9.0* | *23.0* |
| **Professional Schools** | **0** | **9.0** | **7.0** | **15.0** | **15.0** | **46.0** |
| Civil Engineering | | *9.0* | *7.0* | *3.0* | | *19.0* |
| Medicine | | | | *3.0* | | *3.0* |
| Community Health Sciences | | | | *3.0* | *3.0* | *6.0* |
| Social Welfare | | | | *3.0* | *3.0* | *6.0* |
| Urban Planning | | | | *3.0* | *9.0* | *12.0* |
| **Total Positions*** | **36.5** | **48.0** | **65.5** | **88.0** | **90.0** | **328.0** |
| **Total TA-FTE**** | **6.08** | **8.0** | **10.83** | **14.66** | **15.0** | **54.57** |

* One position = one GSI hired for one quarter at 20 hours of work per week (50% time is maximum).
** GSI-FTE = six single GSI positions hired at 50% over 3 quarters.

As indicated in Table 1.5, the Freshman Cluster Program has supported GSIs in 20 different departments, 16 in the College and 5 in the professional schools. A total of nearly 55 TA-FTEs have been funded. Although faculty members in the small humanities departments have not yet participated in the program, graduate students from at least three departments have (Philosophy, Germanic Languages, and Comparative Literature), representing over 25% of the total TA-FTE expended over the five-year period reviewed. Departments in the Social Science have 22.25 TA-FTEs funded over the past five years, nearly 41% of the total. And graduate students from five professional schools have been supported more than in either the divisions of life or physical sciences.

***Are Cluster Courses More Expensive than Other Courses?***

This question has been asked many times. Before attempting an answer, it is necessary to ask a complementary question, "More expensive than what other set of freshman or general education courses?" To answer this, cluster instructional costs per student were compared with instructional costs for similar general education courses.

Recall that cluster freshmen complete two GE lecture courses (each with discussion), a GE seminar, and, because of the number and depth of writing assignments during the yearlong experience, they complete the Writing II requirement. Simply put, cluster students get credit for four requirements by completing three courses. To complete the same set of requirements, non-cluster students must complete four courses—two GE lecture courses, one GE seminar, and one Writing II course.[8]

To compare the annual cost of a cluster to a comparable set of non-cluster courses, it is necessary to calculate the instructional cost of two lecture courses and then add the costs of one seminar and one Writing II course for the same cohort of students.

For the cost-comparison calculations, three cluster courses taught in 2002-03 were selected to represent the Freshman Cluster Program. *Modern Thought* with an annual cost of $194,979 was selected because it most closely matches the cost target set by Vice Provost Smith, who would like to keep the annual cost per cluster to $200,000. Two other clusters were selected for the comparison because they deviated a bit from this expectation. *Biotechnology* with expenditures of $180,892 was less expensive than the expected cost per cluster, while *Interracial Dynamics* with expenditures of $249,430 was more expensive than the expected cost per cluster.

For the cost-comparison calculations, five pairs of lower division courses taught in 2002-03 were selected to represent general education courses from each of the three foundational areas. Two were selected because they had large enrollments (greater than 300 students); others were selected because they had smaller enrollments (100 to 200 per quarter) and were more equivalent to the quarterly cluster enrollments. All of the courses also had discussion sections led by Graduate Student Instructors (GSIs).

Annual costs for the three clusters and five pairs of lower division courses are given in Table 2.5. To calculate the instructional costs for each cluster course, the actual costs for faculty and GSIs for 2002-03 were used. For non-cluster courses, GSI costs were estimated and faculty costs were calculated based on those who actually taught over the last two years (2001-02 and 2002-03).[9] Finally, to equate the costs of the cluster and non-cluster experiences, the costs of a GE seminar and a Writing II course were added to the costs of the non-cluster lecture courses.[10] For both cluster and non-cluster courses, we then calculated the average student enrollment per quarter and the total instructional costs over one academic year.

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[8] All College students must complete at least one Writing II course to satisfy the new College General Education requirements; additionally, all students must complete a GE seminar or a second Writing II course.

[9] For lecturers, the cost was based on the actual salary during the period in which the course was taught; for ladder faculty, we figured that they devoted 50% of their efforts to teaching each quarter, and for most, they taught one course a quarter. Thus, the quarterly cost per faculty was 0.17 of their 9-month salary. For GSIs, we calculated the cost at the Teaching Associate rate (at 50% time) and assumed two sections per TA per quarter.

[10] The cost of one Writing II course for 20 students and one GE seminar course for 20 students was calculated at the cost of one GSI hired at the Teaching Associate level.

For each of the sequences listed in Table .2.5, the annual cost per student was in the $1,200 range, except *Interracial Dynamics*, which was one of the most expensive clusters offered in 2002-03, and History 1A-1B and Linguistics 1 and 8, which were less expensive than the other non-cluster courses reviewed. The average annual per student cost for all 2002-03 clusters was **$1,407**, while the average per student cost was **$1,175** for the sample of non-cluster courses listed in Table 2.5. **These data suggest that instructional costs for cluster students may be 20% more than the instructional costs for non-cluster students enrolled in a series of courses that provide a similar educational experience.**

**Table 2.5 Annual Student Cost for Representative Cluster and Non-Cluster Courses, 2002-03**

| ***Cluster* and Non-Cluster Courses** | **Average # of Students** | **3-Quarter Enrollment (3 x qtr)** | **# GE Seminars *Needed**** | **# Writing II Courses *Needed^*** | **Total Annual Cost** | **Annual cost per Student** |
|---|---|---|---|---|---|---|
| ***Modern Thought*** | 160 | 480 | 8 | -- | $194,975 | $1,219 |
| ***Biotechnology*** | 140 | 420 | 7 | -- | $180,892 | $1,292 |
| ***Interracial*** | 160 | 480 | 8 | -- | $249,430 | $1,559 |
| History 1A-1B | 345 | 1,035 | 17 | 17 | $387,856 | $1,124 |
| Life Sci. 1 and 2 | 484 | 1,452 | 24 | 24 | $587,338 | $1,213 |
| Anthro. 8 & 9 | 173 | 519 | 9 | 9 | $217,841 | $1,259 |
| Geography 1 & 5 | 132 | 396 | 7 | 7 | $167,551 | $1,269 |
| Linguistics 1 & 8 | 264 | 792 | 13 | 13 | $282,362 | $1,069 |

* Because enrollments for the GE seminars and Writing II courses cannot exceed 20 students, the number of seminars and Writing II courses ***"Needed"*** is simply the average number of students enrolled per quarter divided by 20.

^ Because writing is distributed throughout the three quarters of the yearlong cluster, cluster students satisfy the Writing II requirement without taking a separate Writing II course.

The higher cost of teaching a cluster course is due mainly to the following factors:

1) *Faculty*. Usually 3 or 4 faculty members teach collaboratively during the fall and winter quarters. Each faculty member is provided with a full-course release each quarter they participate, because each one is expected to attend all lectures and weekly team meetings (see Sections Five and Six for more details about collaborative teaching). As a consequence, faculty costs per lecture course are higher in clusters than non-cluster courses. In *Interracial Dynamics*, for example, the faculty cost for fall and winter was about $83,000 because the departments of all four faculty received a 'course release' reimbursement each quarter they taught. In Anthropology 8 and 9, one faculty member taught each quarter, and the total faculty cost for the year was about $40,000. The extra costs for faculty members per course add substantially to the instructional cost of a cluster, but the participation of faculty with different disciplinary perspectives is critical to the success of the cluster, as will be reported in Sections Three through Six.
2) *Graduate Student Instructors.* GSIs are typically more expensive for clusters than for other GE courses, because cluster GSIs are UCLA's most experienced academic apprentice personnel, and they are hired as Teaching Fellows, not as Teaching Assistants or Teaching Associates.
3) *Enrollment.* Classes with larger enrollments are generally more cost effective than courses with smaller enrollments. To date, the maximum enrollment for a cluster course has been 175 students (*Interracial Dynamics*). Vice Provost Smith plans to increase some clusters to 200 students in 2004-05; this expansion will increase the GSI cost but not the faculty cost. If, for

example, *Modern Thought* added 40 students to increase the quarterly enrollment from 160 to 200, the annual per student cost would decrease from $1,219 (as shown in Table 2.4) to $1,180.[11] This would represent a savings of 3% in the per student costs. The question to be asked is whether this trade-off is effective given the extra workload for faculty, especially for the coordinator who would need to work with two additional GSIs (see Section Five for comments on faculty workload).

In summary, the instructional cost per student for clusters may be about **20% higher** than the annual student cost per non-cluster course sequences that provide the same educational experiences and meet the same course requirements. This difference is due mainly to the higher cost of GSIs, the higher cost for faculty who teach in a collaborative team, and the typical student/faculty ratio for the average cluster class.

The next logical question is, "Is the higher cost of teaching cluster courses worth it?" This question is difficult to answer without comparison data about learning and achievement in different sets of general education or lower division courses. The sections that follow in this Self-Review Report provide an assessment to begin to examine what elements of the cluster experience provide added value to freshmen, graduate student instructors, and faculty members.

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[11] With 40 more students ~2 more GSIs would be hired (@~$18,000 per GSI); this would increase the total annual cost from ~$200,000 (per Table 2.5) to $236,000. The annual per student cost on a base of 200 students would be $1,180 ($236,000/200 = $1,180).

## SECTION THREE
## THE CLUSTER EXPERIENCE OF FRESHMEN

### Introduction

UCLA's incoming freshmen are without question some of the finest students in the nation. The average high school GPA of these students is a 4.11 and their mean SAT score is 1264. A majority of UCLA freshmen enter with an average of twenty advanced placement and honors courses and have also passed their entry level writing and quantitative reasoning requirements. A quarter of these students are eligible for the College Honors Program at their time of entry into the university.

Despite their high GPAs and test scores, however, our freshmen enter UCLA with little understanding of the expectations of college. They also tend to have an imperfect understanding of the complex world they inhabit, as well as the place of the research university within it. In part, this is simply due to the fact that most of these students are eighteen-year-olds with a limited range of experience and knowledge. Born in the early 80s, these students have never *dialed* a telephone, been concerned about 1984, or found anything terribly futuristic about 2001. Theirs is a world that has known only one Pope and in which Madonna has never been a virgin. In addition, aside from knowing that there is a certain cachet associated with attending UCLA, few of these students have a clear idea of what a research university is, what it does, and what they need to know to make full use of its rich resources.

The cluster program was initiated to assist our incoming freshmen with their transition from high school to college. As such, clusters aim at giving our first-year students a cornerstone experience that familiarizes them with the mission and practices of the research university and also provides them with the skills and general knowledge they will need to succeed both at UCLA and in their future capacities as citizens and professionals. To achieve these aims the cluster program has worked to help students:

- Grasp complex interdisciplinary material and understand the contributions of distinct disciplinary perspectives to the subject matter.
- Strengthen such academic skills as critical thinking, problem solving, rhetorical effectiveness, and creative expression.
- Participate in learning communities led by distinguished ladder faculty that encompass not only in-class but also out-of-class learning experiences.

The assessment of the cluster experience of freshmen attempts to gauge student opinion as to whether or not these high expectations have actually been met.

### Methodology

Because of the diversity of experience among the large number of cluster students, their feedback was obtained largely through quantitative measures. For example, the College Student Database provided demographic and background information about the students. This information included UCLA GPA, retention data, degree progress, major, and if applicable, the cluster courses in which the students enrolled, as well as the grades they earned in those clusters. The database is updated on a quarterly basis, allowing investigators to track student trends over time.

A significant portion of the data in this section is derived from the cluster program's Year-End Survey, which was administered to every cluster student. This survey provided standardized

information about students' reasons for selecting a cluster, their experiences during the cluster, and perceived effects of the cluster experience on their intellectual skills, sense of community, and educational aspirations. The Year-End Survey was administered during the eighth week of spring quarter each year and included open-ended questions which provided many of the quotations in this section of the report. These findings are supplemented by students' responses to OID's Evaluation of Instruction Program (EIP) forms, administered at the end of each academic quarter. The Year-End Survey is reproduced in Appendix B.

To encourage student participation in the Year-End Survey, it was administered during the spring seminars. Students needed about 20 minutes to complete the survey. There was a 92% response rate for the Year-End Survey over four years (see Table 3.1). The high response rate and consistency of results over the four years increase confidence that the results are representative of the total population. Results reported in this section are largely based on the Year-End Survey and show aggregate data over the four years, 1998-2002. Unless otherwise noted, data from 2002-03 is not included and the quantitative findings are derived from the responses of **2,302** cluster students to this survey.

**Table 3.1 Survey Response Rates**

| | # Cluster Students | # Surveys Completed | Response Rate |
|---|---|---|---|
| Year-End Survey | 2,512 | 2,302 | 92% |

The quantitative data discussed in this section were analyzed using two software packages - SPSS and Microsoft Access. Following data input, the researchers utilized cross tabulations, mean comparisons, and t-tests to summarize the data and identify statistically significant differences across subgroups. The open-ended responses were typed, and the transcriptions were reviewed to identify themes in the responses. Based on these data collection and analysis efforts, the discussion below provides a description of the cluster students as a group as well as their reflections on their cluster experiences.

### Profile of Cluster Students

Students learned about cluster courses from summer orientation counselors before the start of each school year. In all program years, all of the clusters filled to capacity during registration prior to the beginning of instruction. As shown in Table 3.2, a total of 3,009 students enrolled in cluster courses during the fall quarter from 1998-99 to 2001-02. Fifty-one percent of cluster students had undeclared majors, 24% of cluster students were declared science majors, and 25% were declared non-science majors. Clusters that offered science GE credit had a larger proportion of non-science majors enrolled; similarly clusters that offered non-science GE credit had a larger proportion of science majors enrolled. This is not surprising and suggests that many students chose to enroll in clusters to satisfy GE credit that would not otherwise be fulfilled by course requirements in preparation for their majors.

**Table 3.2 Fall Quarter Cluster Enrollment at the End of Week Three**

| Cluster Course | # Years Offered | % Science* | % Non-science* | % Undeclared | # Enrolled |
|---|---|---|---|---|---|
| The Global Environment | 4 | 3% | 39% | 50% | 576 |
| Interracial Dynamics | 4 | 37% | 17% | 46% | 560 |
| History of Modern Thought | 4 | 46% | 9% | 45% | 603 |
| Evolution of the Cosmos & Life | 4 | 2% | 45% | 53% | 592 |
| The 1960's | 2 | 42% | 12% | 46% | 289 |
| Globalization | 1 | 51% | 8% | 41% | 113 |
| Aging | 1 | 20% | 24% | 56% | 113 |
| Perception and Illusion | 1 | 13% | 35% | 52% | 163 |
| **TOTALS** | **N/A** | **24%** | **25%** | **51%** | **3,009** |

*Science and Non-science percentages do not sum to 100% due to students who were undeclared

In order to understand who cluster students were, statistical comparisons were made between participants and non-participants. Cluster students were better prepared (as defined by SAT scores, high school grade point averages, and enrollment in College Honors) than were non-cluster students (Table 3.3). Roughly half of both cluster and non-cluster students had undeclared majors. Among students who had declared majors, cluster students were more likely than non-cluster students to be declared humanities majors and non-cluster students were more likely than cluster students to be declared life or physical science majors. This may have been the result of a pre-determined, tightly scheduled first-year course load for pre-medical and science students – they might have felt unable to find the curricular space to enroll in a cluster in their first year.

**Table 3.3 Characteristics of Cluster and Non-Cluster College Freshmen**

| Characteristics | All Cluster Freshmen (N=2,999) | Non-Cluster Freshmen (N=10,912) |
|---|---|---|
| Female* | 67% | 61% |
| Race/Ethnicity | | |
| African American | 4% | 3% |
| Asian | 38% | 40% |
| Chicano/Latino/a | 13% | 14% |
| White (non-Hispanic) | 34% | 32% |
| Other or unknown | 11% | 11% |
| Mean HS GPA* | 4.15 | 4.09 |
| Mean SAT-math* | 658 | 646 |
| Mean SAT-verbal* | 639 | 611 |
| Passed Subject A prior to entrance | 56% | 54% |
| Passed quantitative reasoning requirement at entrance | 54% | 56% |
| College Honors at entrance* | 43% | 26% |
| Major | | |
| Humanities* | 7% | 5% |
| Social Science | 17% | 15% |
| Physical Science* | 6% | 9% |
| Life Science* | 18% | 22% |
| Undeclared | 49% | 50% |

*Difference Significant ($p<.01$)

## Research Findings

The diverse group of surveys and databases utilized in the assessment yielded a comprehensive portrait of the student experience in the cluster program that sheds light on the extent to which we are meeting the three goals described earlier in this section. The subsections that follow include discussions of the motivations students have for enrolling in clusters, their perceptions of their own intellectual development resulting from the clusters, the workload involved in taking a cluster, the sense of community they derive from the program, their reflections on and experiences with the yearlong course structure, and their experiences with the spring capstone seminar.

### *Motivation: Student Reasons for Enrolling in a Cluster Course*

Information about what motivated students to enroll in clusters is important not only in gauging student interest in the program but also because students' expectations upon enrollment can influence their overall satisfaction. Students' reasons for taking cluster courses primarily concerned tangible rewards such as general education credit and, as one student wrote, "the perks of extra units and honors credit." These comments were supported by survey findings that 81% of students enrolled in their cluster during the fall quarter because the GE credit was very important to them (Table 3.4).

**Table 3.4 Students' Reasons for Initially Enrolling a Cluster Course**

| % citing various reasons for enrolling in a cluster as very important | |
|---|---|
| Wanted the GE credit | 81% |
| Thought it would be interesting | 61% |
| Liked the 3-quarter sequence | 23% |
| Wanted a team-taught course* | 12% |

*Not asked in 2001-2002 academic year.
Note: Because most students cited multiple reasons, column sums to over 100%

Not all motivations, however, concerned tangible rewards. For a majority of the students (61%), believing that the cluster would be interesting was cited as very important. Almost a quarter of the students (23%) were attracted to the clusters specifically because they liked the three-quarter sequence.

### *Intellectual Development and Best Practices*

The cluster courses are designed to strengthen the basic skills of first-year students. When asked about how they felt the cluster had influenced certain skills, students clearly credited the courses with having contributed to their intellectual development. Well over half of the students reported a strengthening of writing skills (61%), analytical skills (70%), and library skills (67%) over the course of the year (Table 3.5).

**Table 3.5 Self-Rated Effects of Participation in a Cluster Course on Basic Skills**

| | % rating their skills at the end of the year as… | |
|---|---|---|
| **Student skills** | **Stronger** | **Unchanged** |
| Writing skills | 61% | 38% |
| Analytical skills | 70% | 29% |
| Library skills | 67% | 32% |

Note: Rows may not add up to 100% because a small fraction of students rated their skills as "weaker"

When asked what they felt was the best aspect of the course, many students named benefits that likely contributed to their intellectual development. For example, they described learning how to "do library research and identify proper sources," "look at issues more critically," "think and

analyze," and "develop writing skills." Students also cited growth in areas beyond academic skills such as "getting to know people from different backgrounds and cultures," and "understanding what goes on in the world." One student said that through "reading primary texts [they] learned about society." Another felt that the clusters had "promoted education and understanding between a melting pot of people" exposing them to "so many new ideas and forc[ing] [them] to take positions and defend their thoughts on controversial topics."

One student cited science clusters as a way "for non-science minds to learn about science in an interesting way." Another said that it helped them "enjoy science again and it also made me think in depth about important issues that will govern how we interact in the future world." Others said that the interdisciplinary aspect "prepared them for all other classes." As one student wrote:

> *I like this course because it combines so many elements of liberal arts that I feel I've obtained a deep liberal arts education along with science (my major).*

Based on the students' responses, it also seems clear that many clusters were able to achieve the goal of moving beyond a didactic classroom format. As one student said, "the cluster felt like a team project." As Table 3.6 illustrates, more than half of the cluster students (52%) participated in discussions during lectures and nearly all (99%) participated during their discussion sections. While enrolled in the cluster, the majority of students used the library for research (83%), wrote papers (98%), and used the Internet to obtain material related to the course (94%). Students also commonly took the opportunity to re-write papers after receiving comments (61%).

**Table 3.6 Frequency of Students' Experiences by the Year-End**

| | % who had the experience… | |
|---|---|---|
| | **At least once** | **6 or more times** |
| Class participation | | |
| During discussion section | 99% | 78% |
| During lecture | 52% | 16% |
| Assignments | | |
| Write a paper of 1-5 pages in length | 98% | 34% |
| Use the WWW or Internet as a part of the course | 94% | 52% |
| Write a paper more than 5 pages long | 88% | 6% |
| Write a paper that involved library research | 83% | 5% |
| Go to the library to find materials related to the course | 80% | 15% |
| Re-write a paper after receiving comments | 61% | 6% |
| Conduct lab experiments/exercises | 56% | 30% |
| Apply mathematical concepts to problem solving | 49% | 14% |

As shown in Table 3.7 below, over half of the students (52%) also reported being more engaged in their cluster courses than with their other courses. The majority of students reported that clusters offered more value (62%), instructor challenge (61%), and intellectual stimulation (59%) than did other courses. Year-End Surveys and evaluation forms reveal that students are very impressed with the "enthusiasm," "passion," and "level of knowledge" of their instructors, which may explain some of these findings. Moreover, students' views could be the result of the greater connection students said they felt to the cluster than to other courses. For example, one student called the clusters "much more personalized than other classes." Another said the "teachers become more known; they don't seem like strangers."

When describing what they considered to be the best aspect of the course, many students cited specific classroom practices such as group projects and presentations that helped them to engage

with the material and to "understand the readings at a higher level." They were grateful for the discussion sections and seminars because "it's easier to absorb information through participation instead of being 'talked at' in lecture." The yearlong structure of cluster courses provided more time than the typical 10-week quarter, and this may have allowed faculty to more easily employ successful best practices and foster engagement among cluster students. One student put it succinctly:

> *Because it's three quarters long and interdisciplinary, the depth of analysis and the breadth of concepts results in unparalleled opportunity for holistic education and intellectual stimulation.*

This combination of motivated instructors, engaging pedagogy, and the opportunity to "settle in" for a full year seems conducive to increased student engagement and enthusiasm about cluster courses.

**Table 3.7 Student Comparisons of Cluster and Non-Cluster Courses at Year End**

| | % responding that clusters offered… | | |
|---|---|---|---|
| **Types of Engagement** | **More than other courses** | **About the same as other courses** | **Less than other courses** |
| Overall value of the course | 62% | 27% | 11% |
| Degree to which instructors challenged you to think critically | 61% | 32% | 7% |
| Amount you learned | 60% | 33% | 7% |
| Intellectual stimulation | 59% | 32% | 9% |
| Your level of involvement/engagement in the course | 52% | 35% | 13% |
| Your enthusiasm about the course | 48% | 30% | 22% |

### *Workload*

Over 50% of cluster students reported that the cluster demanded more work and required more time than other classes (Table 3.8). In their surveys, students often put a positive spin on the workload, however, and reported that the courses were "high quality" and "challeng[ed] you to work hard all the time." One student claimed that the class "consumed more time than the pre-requisites for the major." Several other students cited the cluster as "very time-consuming" and even "slightly overwhelming." Across the clusters the most frequently cited workload issue was the amount of reading, "especially for incoming freshmen." One student suggested reducing the amount of reading so they "could take more time to evaluate in-depth the complex material being presented."

**Table 3.8 Cluster Course Workload in Comparison to Other Courses**

| | % responding at year end that… | | |
|---|---|---|---|
| **Workload Characteristics** | **Cluster has more than other courses** | **Cluster has about the same as other courses** | **Cluster has less than other courses** |
| Amount of work | 55% | 36% | 9% |
| Time devoted | 51% | 35% | 14% |
| Difficulty understanding content | 39% | 41% | 20% |

This increased workload may have been due in part to the fact that cluster courses carry five units of credit, versus the traditional four units carried by most other courses. In addition, over one-third of the students reported that understanding the content in the cluster was more difficult than in other courses, so they may, in turn, have felt they needed to devote more time and effort to the course. From students' open-ended responses, it appeared that being in an environment that was intellectually engaging with peers of equivalent academic readiness provided a challenge to which students were willing to rise and from which they had an experience that facilitated their transition from high school to college. For example:

*It is a great chance to get the most out of UCLA. Also the material is very challenging and the environment is competitive. It helps students adjust to the college experience.*

*I think that this course is very beneficial to incoming freshmen. If you can make it through this, I think you are ready for anything UCLA can throw in your way.*

### *Achieving a Sense of Community*

When identifying the best aspects of their cluster courses, students frequently cited the sense of community they felt, both with each other and with the course instructors. In particular, students referred to the yearlong format as helping them "form closer relationships with the cluster professors and TAs," and explained that being able to get to know the professors made them feel "less like a number." One student noted that in the cluster, the "teachers become more known; they don't seem like strangers like in other classes." Similarly, another student said "the cluster set up allows freshmen to feel connected to UCLA and to several professors." Yet another called the contact with faculty "incomparable."

These sentiments are echoed in the quantitative findings which show that interactions with instructors and with peers led to a greater sense of community in the clusters as compared to other courses for almost 70% of the students (Table 3.9). Fifty-five percent of students reported that they had more interaction with faculty in cluster courses than with faculty in non-cluster courses during their freshman year.

**Table 3.9 Cluster Course Community in Comparison to Other Courses**

| | % responding at year end that… | | |
|---|---|---|---|
| **Community Characteristics** | **Cluster has more than other courses** | **Cluster has about the same as other courses** | **Cluster has less than other courses** |
| Sense of Community | 68% | 25% | 7% |
| Contact with Faculty | 55% | 35% | 10% |
| Contact with GSIs | 79% | 18% | 3% |

Almost 80% of students reported that they had more interactions with graduate student instructors in clusters than they did in other courses. This number was higher than for the faculty, most likely because GSIs led weekly two-hour discussions during the fall and winter quarters and taught the majority of the spring seminars. One student described his experience:

*The TAs were very accessible, since their office hours were held in Covel. I really got to know my TAs well, and I think that I felt more comfortable going to them for help than I did in other courses.*

Student responses about how often they had particular experiences in their cluster courses reinforced these findings. As shown in Table 3.10, students had more contact with graduate student instructors than with faculty, both in person (84% compared to 47%) and via e-mail (95% compared to 64%). Again, this was not surprising, given that students spent their two-hour discussions with a single graduate student instructor, often over two quarters. Many of the cluster students also continued their relationship with their GSIs by enrolling in their spring seminars.

Table 3.10 also emphasizes the relationships that students developed with their peers. Most students reported participating in the following activities as least once over the course of the year: talking outside of the class about the cluster (98%), carrying out course assignments in small groups (90%), studying with other students (87%), and exchanging e-mail with other students

(81%). In the questionnaires, students frequently referred to the close friends they had made in the clusters, and commented that the clusters helped them meet a lot of people. For example, one student said he thought, "the cluster work[ed] well to help first year students feel a kind of cohesion the first year." Another said that in the cluster, "You meet new people and make good friends since you're together for the whole year." Many students agreed, attributing their close connections to the three-quarter structure of the course: "taking the same class with the same people for three quarters allows many friendships to develop."

**Table 3.10 Frequency of Students' Interactions with Others**

| | % that had the experience… | |
|---|---|---|
| | **At Least Once** | **6 or more times** |
| Contact with faculty | | |
| Attended office hours in person | 47% | 5% |
| Exchange e-mail | 64% | 16% |
| Contact with graduate student instructors | | |
| Attended office hours | 84% | 19% |
| Exchange e-mail | 95% | 43% |
| Contact with peers | | |
| Participate in activities in the residence halls related to the course | 38% | 2% |
| Exchange e-mail with other students in the course | 81% | 26% |
| Carry out course assignment in small groups or teams | 90% | 19% |
| Study with other students enrolled in cluster | 87% | 38% |
| Talk outside of class about cluster | 98% | 69% |

As was alluded to in an earlier subsection, the bonds students felt with each other and with their instructors seemed to contribute to their intellectual engagement in the clusters. According to one student, "The sense of community was amazing, we felt encouraged to ask questions." Another remarked, "The instructors were approachable and friendly which helped the class feel united." Students frequently commented on how the instructors showed "great concern for student learning," and that having a greater opportunity to get to know the instructors helped them "get the most of out of class." As one student wrote, "They truly seem to care."

Beyond intellectual engagement, students credited the cluster community with providing them with a sense of support as they transitioned from high school to college. Students commented on how much they felt welcomed in their first year of college, and how the community they found in the clusters provided them with a "sense of stability in the first year," making "UCLA seem a little smaller." As one student wrote:

> *The first year in a new place is hard but this class always felt comfortable and safe. In the first two quarters, it was my smallest lecture and it was nice to see the same people all the time. This quarter, the seminar is a nice way to get personalized attention. So, at such a big school, this class made me feel less lost.*

Another student pointed out that "freshman year is a weird time" and staying with the same classmates for nine months helps with the transition because "it's kind of like you're still in high school."

### *The Yearlong Experience*

The clusters stand apart from most other undergraduate courses because students typically remain part of a cluster community for a full academic year. During that year, their perceptions of the course series inevitably shift and, for some, decisions about whether to remain enrolled are made. Drawing on results from OID Evaluation of Instruction Program (EIP) forms and the cluster Year-End Survey, we were able to glean some understanding of students' experiences as they progressed through their cluster courses.

EIP forms provide a useful snapshot of students' perceptions of the cluster experience at the end of each academic quarter, helping us to understand how their views may change over time. At the end of the fall and winter quarters, Cluster freshmen evaluated the lecture portion of the class by completing the standard Faculty Evaluation form; they also evaluated their discussion sections by completing the standard GSI Evaluation form. In the spring, students evaluated the seminar using the standard faculty or GSI form depending on who their instructor was. Both forms use a nine-point scale where "5" is "Average," "7" is "High or Frequently," and "9" is "Very High or Always" and questions address a range of issues, from perceptions of the instructors' knowledge and preparation to overall ratings of the course and the instructor.

As Table 3.11 shows, on almost every item, students' mean ratings of their cluster courses were at the "High or Frequently" level or above. Moreover, by the end of the spring seminar, the average ratings for these items were typically closer to (and in some cases higher than) eight on this nine-point scale. These solid ratings by year's end may be due, at least in part, to the likelihood that by spring quarter students had become better adjusted to the demands of college and the rigors of cluster courses, and therefore perceived the courses more positively.

**Table 3.11 Mean Student Evaluation Ratings for Fall, Winter, and Spring, 1998-99 to 2001-02***

| Scale = 1-9 | Faculty Cluster Instructors | | | Graduate Student Cluster Instructors | | |
|---|---|---|---|---|---|---|
| | **Fall Lecture** N=1633 | **Winter Lecture** N=1831 | **Spring Seminar** N=855 | **Fall Lecture** N=1893 | **Winter Lecture** N=2376 | **Spring Seminar** N=1009 |
| Knowledgeable about the material | ** | ** | ** | 7.8 | 8.1 | 8.4 |
| Concerned about student learning | 7.1 | 7.2 | 7.9 | 7.7 | 8.1 | 8.3 |
| Well prepared and organized | 7.4 | 7.3 | 7.4 | 7.3 | 7.7 | 7.7 |
| Learned something of value | 7.2 | 7.3 | 7.6 | 7.1 | 7.6 | 7.7 |
| Students felt welcome in seeking help | 6.9 | 7.0 | 7.8 | 7.8 | 8.1 | 8.2 |
| Good communication skills | 7.0 | 7.1 | 7.8 | 7.5 | 8.0 | 8.1 |
| Overall rating of the instructor | 7.2 | 7.3 | 7.9 | 7.7 | 8.1 | 8.3 |
| Overall rating of the course | 6.9 | 7.1 | 7.5 | *** | *** | *** |

* Due to a technical problem with OID's software package, Spring 1999 and Fall 2000 data have not been available to the campus

** Question not asked on the standard Faculty Evaluation form

*** Question not asked on the standard GSI Evaluation form

As will be discussed in later sections of this report, faculty and GSIs suggested that perhaps the greatest challenge faced by cluster students in the fall and winter quarters was the integration of material from diverse disciplines. This idea was supported in students' evaluation forms – an initial review of their written comments revealed that for some students, "it can be a bit difficult to determine what is most important" and that "lectures often seem not to connect to each other." Other students explained that the "information is hard to synthesize when there's so much on so many topics" or that "the scope of the class as a whole is a bit jumbled." Another complained:

> *We covered everything way too fast. I think everyone would enjoy and learn a lot more from this course if things were covered slower. In lectures, the topic tended to jump around and the lecturers would go off on tangents a lot. Many times the main point would get lost.*

As addressed in Sections Four and Five, while the course instructors recognized that the burden to synthesize their often disparate content material rested on their own shoulders, for some students at least, the struggle to make sense of the material hit home. In fact, this struggle may help to explain cluster course attrition rates: Over the course of the five years, 627 students did not complete their cluster courses, for an average attrition rate of 15% from fall to spring quarter (Table 3.12). More students chose not to continue from fall to winter (11%) than from winter to spring (4%). Additionally, attrition rates for an individual cluster tended to be the largest during its inaugural year, when the challenge for faculty to make connections across disciplines may have been greatest, and then declined in succeeding years in which the course was offered.

**Table 3.12 Cluster Enrollment by Quarter and Overall Attrition Rates Over Five Years**

| *Cluster Course* | # Years Taught | # Enrolled | | | # Not Continuing | Overall Attrition Rate |
|---|---|---|---|---|---|---|
| | | Fall | Winter | Spring | | |
| The Global Environment | 5 | 740 | 668 | 657 | 83 | 11% |
| Interracial Dynamics | 5 | 734 | 684 | 646 | 88 | 12% |
| History of Modern Thought | 5 | 771 | 675 | 648 | 123 | 17% |
| Evolution of the Cosmos & Life | 5 | 750 | 690 | 661 | 89 | 12% |
| The 1960's | 2 | 289 | 248 | 235 | 54 | 19% |
| Globalization | 2 | 253 | 194 | 185 | 68 | 27% |
| Aging | 2 | 239 | 196 | 193 | 46 | 19% |
| Work, Labor, & Social Justice | 1 | 128 | 121 | 118 | 10 | 8% |
| Biotechnology | 1 | 139 | 127 | 122 | 17 | 12% |
| Perception and Illusion | 1 | 163 | 124 | 114 | 49 | 30% |
| **TOTALS** | **n/a** | **4206** | **3727** | **3579** | **627** | **15%** |

For the 1998-99 and 1999-00 academic years, non-continuing students were asked to complete questionnaires similar to those administered to continuing students. While the response rate for these mailed surveys was low, those students who did respond provided us with some indications of why they chose not to continue with their cluster courses. Specifically, most reported dropping the course because it was not what they had expected, there was too much reading and homework, or they were disappointed in their fall quarter cluster grades.

Indeed, a comparison of fall quarter cluster grades for the first four years of the cluster program shows that students who continued in the clusters did have significantly higher fall cluster grades than those who did not continue. Students who continued had an average fall cluster grade of B (3.19), while students who completed the fall term but did not complete the winter term had a B- average (2.71). This is consistent with students' self-reports that disappointment in their fall quarter grades – which may have resulted from the issues described above – influenced their decisions to drop out of the cluster series.

While some students experienced difficulty adjusting to the rigors of cluster courses, Year-End surveys revealed that, overall, students saw clusters as valuable courses. At year's end, over 80% of

cluster students reported that course content developed logically across quarters, that the major themes were clear, and that the overall purpose of the course was clear (Table 3.13).

**Table 3.13 Overall Cluster Course Experience of Freshmen**

| | % of respondents | | |
|---|---|---|---|
| **Course characteristics** | **Agree** | **Neutral** | **Disagree** |
| The major themes that underlie this course are clear | 89% | 7% | 4% |
| The purpose of this course is clear | 87% | 9% | 4% |
| Previous quarter course content builds on current quarter course content | 81% | 10% | 9% |
| The course is well-organized | 79% | 13% | 8% |
| Lectures by different faculty are well connected | 70% | 15% | 15% |

Note: Data were not collected in 1998-1999 academic year.

Students' open-ended survey responses supported the idea that, despite any earlier struggles, the clusters' yearlong format ultimately worked in concert with the course content to help students "connect the themes," and be able to "build upon the information" presented. One student felt that the best aspect of the cluster was "the fact that all the topics were joined and your background knowledge of the subject expanded." Many students indicated that the cluster series was a "good basis for all introductory classes." Others praised the seminar as a capstone experience that allowed them "to focus on one topic" and "to relate it back to what was learned" over the previous two quarters.

Many students across the clusters also indicated that the content of the cluster series could be applied to life in and outside of the classroom. Students felt that the "real world themes" gave context to the course and gave them something they could "identify with." According to one student, they "were able to look at aspects of life that we deal with everyday and take them apart and evaluate them." This opportunity, in turn, allowed students to develop a deeper understanding of the course material. For example:

> *The best aspect of the cluster series was the application of the material to current global trends.* [The] *material was cutting-edge and the debates made things more interesting.*

> *The cluster series allowed me to think critically about subjects that I felt applied to life. It challenged me to see new and varying views on topics concerning society and ultimately, the individual.*

Students also pointed to the high caliber of the instructional teams as one of the best aspects of the cluster series. Students felt that the instructors (faculty and GSIs) were "enthusiastic," "highly knowledgeable" and "really cared about the subject." Students thought that the team-teaching aspect "provided variety," and they enjoyed "the diversity of the course material as well as the perspective offered by multiple professors/TAs." Many also mentioned the spring seminar, which they thought of as a "nice ending to the year" because they were "forced to apply a lot of the concepts we learned earlier [and] focus on a very specific topic." Because of the importance of the seminar to the cluster experience overall, it is discussed in greater detail in the following section.

### *The Capstone Seminar Experience*

As is clear from the preceding sections, the seminar experience was a particularly important component of the cluster program because it had the potential to allow students to investigate course content in greater depth and to form closer bonds with course instructors and fellow students. Based on students' responses on course evaluation forms at the end of the seminars, it is evident that the cluster seminars did, by and large, meet these goals.

Students particularly enjoyed the discussion format of their spring seminars, calling the interactions "thought provoking," "exciting," and "intriguing." One student said that she appreciated

> *…how the professor presented us with facts, yet didn't attempt to persuade us into believing one side or another. Also, the class discussions that resulted were even more heated once we were able to form our own opinions.*

Another student echoed this sentiment, saying that the seminar allowed students "to discover the themes and elements of [the subject matter] ourselves, rather than be told right off the bat what we should be observing." Students were appreciative of seminar environments that were "relaxed yet informative" and "stimulating but not intimidating." The opportunity to "[argue] opposing sides of current hot topics" rather than having information "fed to us" allowed students to feel more comfortable with course material. One student who described the discussions as "always stimulating" said "I've never thought so much in a class."

Not surprisingly, given the small size of the classes, students felt a strong sense of community in their seminars. Some students specifically said they enjoyed the open discussion format that existed in most. Many seminars also incorporated other nontraditional teaching approaches like field trips, group activities, and dramatic skits. Students said these deviations from the norm "made learning the material a pleasure" and, in the case of field trips, gave them the opportunity to "see first hand what we learned."

Students offered constructive ideas for improving the seminars, but most of these recommendations seemed to have more to do with their unfamiliarity with the seminar format than anything else. For instance, some students were uncomfortable with a single, final paper at the end of the course because, as one student put it, "I had no idea what kind of grade I was getting in the class." More often, students complained that "the three hours were too long!" because it is "hard to focus for that long." On the whole, however, these comments were the minority and students' opinions of the cluster seminars were largely positive.

## SECTION FOUR
## THE CLUSTER EXPERIENCE OF GRADUATE STUDENT INSTRUCTORS

### Introduction

There are approximately 5700 doctoral students enrolled in more than 100 programs of study on UCLA's campus. Of the roughly 600 doctoral degrees awarded annually, 44% are awarded to women and 11% are awarded to students considered to be underrepresented minorities. The National Research Council ranks UCLA among the top 12 institutions in the country for graduate education and regards many of its doctoral programs to be among the best in their fields.

Nationally, 63% of current doctoral students plan to pursue an academic career when they graduate. With few exceptions, the majority of these students consider the acquisition of teaching experience and skills to be a vital component of their graduate education. One of the key aims of the cluster program is to give our most experienced doctoral students a capstone instructional experience that provides them with both yearlong financial support and the opportunity to:

- Engage in interdisciplinary teaching and innovative pedagogical practices.
- Design and teach a seminar that is based on their own scholarly research and cluster experiences during the fall and winter quarters.
- Participate in an intellectual community with motivated freshman students, distinguished faculty from programs and departments across campus, and graduate student colleagues in a wide array of disciplines.

Graduate students are an integral part of the collaborative teaching model in the general education clusters. During the fall and winter quarters, they work closely with the faculty in their clusters as teaching apprentices and serve as an important link between undergraduate students and faculty. In this capacity they help shape the courses and assignments and also lead the clusters' weekly discussion sections and/or laboratory sessions, which are comprised of roughly twenty students each. Graduate students who work with the clusters also develop, organize, and teach their own seminars during the spring quarter. They work intensively in these seminars to develop students' skills in key areas including writing, critical thinking, quantitative reasoning, and logical argumentation.

To assist with the many challenges posed by an interdisciplinary, yearlong course for freshmen, the cluster staff requires GSIs to take part in several training workshops. First, before teaching in the cluster, GSIs participate in an orientation in which they are given information about the history and aims of the cluster program, characteristics of incoming freshman students, the assessment process, and instructional support resources. These orientation sessions have featured panels of former cluster students and GSIs who talk about their experiences in the various cluster courses. As the year progresses, graduate students participate in workshops designed to assist them with the development and organization of their seminar courses. For example, the cluster administrative team offers workshops on teaching writing, student research resources, Internet use, and seminar syllabus design. Finally, current cluster GSIs meet with a panel of former GSIs to discuss developing seminar goals and aims, choosing readings, developing assignments, and organizing and facilitating discussions.

Most graduate students who work with the cluster program have advanced to candidacy, and they are required to have at least five quarters of prior teaching experience. Most often, graduate students are recruited by cluster program faculty based on their outstanding academic work and

demonstrated commitment to working with students. The majority of graduate students who work with the cluster are classified as Teaching Fellows (TFs), though some do fall into other classifications. Because of this diversity, for clarity's sake, the graduate students are referred to in the program and in this document as graduate student instructors, or GSIs.[12]

The portion of the assessment focused on graduate student instructors sought to determine the extent to which the cluster program is meeting the three goals outlined above. Specifically, it was designed to shed light on the experiences of graduate students as they foster and participate in an intellectual community, engage in interdisciplinary teaching, and design and deliver their spring seminar courses.

**Methodology**

In order to better understand the experiences of GSIs in the cluster program, focus groups were conducted during the 1998-99, 1999-00, and 2000-01 academic years. Each year, the GSIs were asked to participate in a two-hour discussion with the other GSIs from their cluster. Overall, data were collected from 50 graduate students in 14 focus groups. The groups took place toward the end of each academic year, and two researchers conducted each group. The GSIs from all of the clusters offered in those three program years were asked about the following issues:

- Their motivations and reservations about working with the cluster program,
- Their experiences in cluster course development,
- The intellectual development resulting from the experience,
- The workload involved in cluster teaching compared to other teaching experiences,
- Their sense of community with each other, with the undergraduate students, and with the faculty members in their clusters, and
- Their experiences with the capstone seminar component.

Because the spring seminar is such an important piece of the graduate student experience in the cluster program, an additional round of interviews focused exclusively on this topic was conducted in the fifth year of the program (the 2002-03 academic year). These one-on-one conversations took place with 15 former GSIs from a range of academic departments who had worked with a diverse group of clusters. The goal was to better understand how GSIs designed and delivered their spring seminar courses, what they found particularly valuable about the experience, and what may have been especially challenging. (See Appendix B for copies of both interview guides.)

The interviews and focus groups were audio-taped and, in most cases, transcribed. Following transcription, the analysis process consisted of reading and re-reading transcripts and interviewers' notes to identify salient themes. Responses were then sorted according to these themes. Based on these data collection and analysis efforts, the discussion below provides a description of the graduate student instructors as a group as well as their reflections on their individual cluster experiences.

[12] GSIs have also included a relatively small number of postdoctoral fellows (6 out of 102 overall). While these individuals have been an integral part of the cluster program, the GSI position is designed primarily as a teaching and learning opportunity for graduate students. As such, this section focuses primarily on the experiences of graduate students.

**Profile of the Graduate Student Instructors**

In the five years of the cluster program, 116 GSI positions have been filled by 96 graduate students and six postdoctoral scholars (Table 4.1). For this time period, most GSIs taught in the cluster program only one year, though a relatively small percentage (14%) taught for two or more years, resulting in the larger number of positions than individuals. Before joining the cluster, the graduate students had between two and eleven years of graduate school experience (with an average of 4.8 years), and 14% completed their studies in the same year they taught in a cluster. These five cohorts of GSIs came from a wide range of academic departments, most commonly History (20), English (17), and Political Science (10). For a complete list of departments see Table 4.2.

The demographics of the graduate students who participated in the focus groups and interviews are quite similar to the overall demographics presented in Table 4.1. Specifically, 40% of the participants were female, and 12% had taught in the cluster program for more than one year at the time they were interviewed. Thirteen percent of those who took part in the research completed their degrees in the same year they worked with the cluster program.

**Table 4.1 Demographics of Graduate Student Instructors**

| | Overall GSI Population | | | | |
|---|---|---|---|---|---|
| | **N** | **% Female** | **% who had Previously Taught in a Cluster** | **% who Graduated in Year They Taught in Cluster** | **Average # of Years of Graduate School** |
| 1998-1999 | 16 | 38% | 0% | 21% | 4.9 |
| 1999-2000 | 14 | 46% | 7% | 13% | 4.4 |
| 2000-2001 | 23 | 41% | 18% | 33% | 4.9 |
| 2001-2002 | 29 | 55% | 7% | 3% | 4.3 |
| 2002-2003 | 34 | 56% | 26% | 8%** | 5.2 |
| **Total** | **102*** | **46%** | **14%** | **14%** | **4.8** |

* Total is adjusted to account for graduate students who participated in more than one program year.
** Represents students who expect to graduate in the 2002-03 academic year.

**Table 4.2 Departmental Affiliations of Graduate Students in Each Program Year**

| | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | Total** |
|---|---|---|---|---|---|---|
| Anthropology | | | 1 | 1 | | 2 |
| Civil & Environmental Engineering | | 1 | 1 | 1 | | 3 |
| Comparative Literature | | 1 | 1 | 2 | 2 | 6 |
| Earth & Space Science | 3 | 1 | 1 | | 1 | 6 |
| Economics | | | | 1 | 1 | 2 |
| English | 5 | 2 | 5 | 2 | 3 | 17 |
| Film, TV, & Digital Media | 1 | | | | | 1 |
| Geography | 1 | | 1 | 4 | 1 | 7 |
| Germanic Languages | | | | 2 | | 2 |
| History | 1 | 3 | 4 | 5 | 7 | 20 |
| Medicine | | | | 1 | | 1 |
| Molecular Biology | | | | | 1 | 1 |
| Organismic Biology, Ecology, & Evolution | | 1 | 3 | 1 | 2 | 7 |
| Philosophy | | | | | 1 | 1 |
| Physiological Science | | | | | 1 | 1 |
| Physics & Astronomy | 1 | 1 | 1 | 2 | 1 | 6 |
| Political Science | 1 | 1 | 2 | 3 | 3 | 10 |
| Psychology | | | 3 | | | 3 |
| Public Health | 1 | | | 1 | 1 | 3 |
| Public Policy | | 1 | | | | 1 |
| Social Welfare | | | | 1 | 1 | 2 |
| Sociology | 1 | 1 | | 1 | 3 | 6 |
| Urban Planning | 1 | 1 | | 1 | 3 | 6 |
| Unaffiliated* | | | | | 2 | 2 |
| **TOTAL** | **16** | **14** | **23** | **29** | **34** | **116** |

* Includes two non-student tutors not currently enrolled in a UCLA doctoral program.
** Represents total number of GSI positions filled.

## Research Findings

The focus groups yielded valuable information about both the reasons that GSIs became and remained involved in the cluster program and the challenges they faced as they carry out their work. Most of the findings are consistent across clusters, though our research does reveal important distinctions between hard science and social science/humanities clusters. These differences are discussed in the context of the broader findings below. The subsections that follow include discussions of the motivations and reservations that GSIs had related to working with the cluster program, their experiences in cluster course development, the intellectual development resulting from the experience, the workload involved in cluster teaching, the sense of community they perceived in the program, and their experiences with the capstone seminar component.

***Motivations and Reservations***

The overwhelming majority of graduate students who worked with the cluster program did so at the recommendation of either a faculty member or another graduate student. Many were encouraged by mentors who were directly involved with the program as instructors. One GSI, for example, said that a faculty member in her department "extolled the virtues of the cluster and how much fun it would be to teach. And absolutely nothing he said was wrong." Others heard about the opportunity through graduate students who had worked with the program in earlier years. One GSI said her peers "had nothing but good things to say about it." Another had been told, "Absolutely do it."

While these recommendations served to get graduate students interested in the program, there were a variety of more personal reasons that led GSIs ultimately to make the decision to work with the cluster program. Consistently, across program years, the GSIs said the opportunity to design and deliver their own seminar courses was their primary motivation for working with the program. They were eager for the opportunity to have full control over a course and to broaden their teaching expertise, and many were aware that it would "look good on my vita."

While the seminar experience was the most common reason given for choosing to participate, many also said they joined the cluster because it allowed them to work with a single group of students and a team of faculty members in a consistent, structured way. The graduate students were attracted to the opportunity to work with students whom they saw as "more motivated" than other students they had worked with and as very interested in "learning something new." Some were also eager to "function as a team" with a group of faculty members in designing and delivering a course. And finally, at a purely practical level, many of the graduate students said they were initially drawn to a cluster because, as a year long course, it carried a guarantee of income for a full academic year.

Participation on the part of these graduate students did not come without some reservations, most of which centered around workload. Those who talked with peers who had worked with the program in previous years were warned of the significant time commitment involved in participation. Nevertheless, the overwhelming sentiment of cluster alumni was "It's an enormous time sink. Definitely do it." These workload concerns are addressed in a later subsection.

There were particular issues of concern for graduate students who came from the hard sciences. Although an appreciation for the course design was widespread among the GSIs, those who came from the sciences were sometimes aware of a disconnect between the cluster and their own departmental culture. More specifically, in the natural sciences, teaching is perceived by some to be a distraction from more prestigious lab work. GSIs who came from the natural sciences were aware that they may have been breaking away from the norm:

> *[Other graduate students in my department] are not as interested in teaching as I am. For me it was ideal because I know that I want to teach and I enjoy teaching, so it was not as big a sacrifice as the other graduate students who are very research intensive. …To them it would be a complete nightmare to give up 20 hours a week on the cluster.*

On the whole, however, this was not seen as an insurmountable challenge. The GSIs who chose to get involved in the cluster courses were particularly interested in teaching to begin with, so the necessary negotiation between teaching and research cultures is one that will likely carry over into their faculty careers.

***Course Development***

Graduate student instructors in the cluster program had a unique vantage point because they interacted frequently with both program faculty and enrolled students. In this role, they witnessed and became part of the inevitable challenges of creating and sustaining a collaborative relationship among the cluster team members – an integral (yet occasionally problematic) part of the cluster design.

According to the GSIs who participated in this research, collaboration occurred most effectively where the cluster's goals and organization were clearly expressed. In every focus group, the GSIs stated either that the articulated goals of their cluster worked well to create cohesion and synergy or that this type of focus was greatly needed. For example, GSIs who met with their instructional teams during the prior spring or summer and regularly during the following academic year felt these meetings were very helpful for not only establishing a common framework and language for delivering the course, but also for building camaraderie and trust among the teaching team and for preparing for the year ahead. This type of preparation also equipped GSIs with the tools they needed to help students navigate the complex interdisciplinary course content. This articulation and collaboration appears to have occurred most effectively in the more seasoned clusters, where faculty efforts to include GSIs in all aspects of the course – including any adjustments to the focus of the course, assignments, tests, and grading practices – were more fruitful.

In those clusters where goals were not as clearly defined, there were additional issues to be considered. During one focus group, for example, a GSI explained that with multiple faculty instructors it feels like no one really "owns" the course. As a result, "[the GSIs] have to own it" by finding common threads and linking disparate content themes. While this situation gave GSIs an opportunity to take on additional responsibilities and to grow professionally, it also created a great deal more work. More specifically, where the GSIs perceived a cohesive course message was lacking, they also felt students were confused, and GSIs said they carried the burden. They believed students did not always understand the faculty members' multiple perspectives and that the faculty were not close enough to the student experience to recognize this as a concern. At its most concrete, for example, students struggled with examinations that asked for one "correct" answer, rather than offering credit for discussion of the multiple and diverse perspectives that were offered in class. Students looked to their GSIs for guidance in understanding and integrating material, and this required the GSIs to have a firm grasp on the full breadth of ideas and philosophies that the faculty covered, even though most of these ideas were also new to them. As such, many GSIs felt they were the only link between students and faculty members.

In clusters where faculty did occasionally participate in discussion sections, GSIs believed students had an easier time distinguishing between disciplinary perspectives and understanding course content. Moreover, as one GSI put it, these visits also allowed faculty to keep a "finger on the pulse of student culture." Ultimately, this combination of experiences may have helped to create a more coherent course.

***Intellectual Development***

Graduate student instructors reported benefits to both their research and their teaching from participating in the cluster program. Referring to the overall course design, one GSI said, "We felt that we were a part of something really important, really radical in terms of pedagogy." In particular, the interdisciplinary environment was especially valuable to the GSIs and they likened it to "something that a liberal arts school would do – very integrative, multidisciplinary, like a core class." GSIs were introduced to material they might not otherwise have seen while teaching a single-discipline course and this, in turn, gave them new perspectives on their own research and

future teaching. As one GSI explained, he was glad to be exposed to "a broad overview of (material) that had relevance to my own work."

Perhaps the greatest degree of intellectual development for cluster GSIs was in their teaching expertise. In the fall and winter quarters, GSIs appreciated the two-hour discussion sections because they allowed for deeper, more meaningful conversations with students about course issues. Students had the opportunity to raise questions and formulate arguments while GSIs developed their facilitation abilities – skills that served both groups well in the spring seminars. Because of the importance of the seminars to the overall graduate student experience in the cluster, they are discussed in greater detail in a later subsection.

***Workload***

Graduate students who became part of the cluster program were hired to work no more than 20 hours per week, or "half time." One important reason for this limit was to ensure that they continued to progress through their own educational programs. Through the focus groups, however, it became clear that many of the GSIs felt their workload exceeded this amount, and some expressed concern that being a GSI may have temporarily slowed down their progress toward their degrees. Particularly in the fall and winter quarters, the cluster courses may have put greater demands on GSIs than other courses would have: "There was quite a bit more work than a regular TAship, especially the first quarter – a lot of reading, assignments, grading, and a lot more preparation time." Not only was there the usual preparatory time, grading time, class time, and office hours, but these courses also required weekly planning meetings, typically with the entire course team (faculty and GSIs) and additional preparatory time because much of the material was unfamiliar to the instructors. This was particularly the case in clusters that spanned the most disparate disciplines. One GSI explained:

> *I think it was different for all of us because we are coming from different backgrounds to the material. In some cases, I was reading material for the first time and I need a lot of preparation to understand – not only the text, but some kind of context, which will allow me to teach it to students.*

Another GSI echoed this, explaining that preparing for the cluster was more time consuming because she "had to read everything in the reader in detail, the book and articles that were given out to make sure I was up to speed."

It was not just the GSIs who were struggling with how to integrate new material. Often, the GSIs believed that the faculty were grappling with this issue, as well. For instance, one individual expressed a concern that "the professors hadn't thought through how [the GSIs] would cover these areas far away from our own discipline." One manifestation was the arguably large amount of reading that was assigned in some clusters:

> *The professors… would have an idea of what would be covered one week and they all had an idea of what reading is best for that topic, and as a result we would get 50 to 75 pages worth on that topic.*

Heavy reading loads may have been especially troublesome since the GSIs said they were expected to synthesize this disparate material for the students, most of whom had not been exposed to the different disciplinary perspectives prior to enrolling in the cluster. One individual suggested "if we had nailed down core themes in the [cluster] meetings then at the very least we [would have known where to focus]." Another suggested that clearer articulation of differences and acknowledgement of conflict between the disciplines and faculty perspectives might also have captured students'

interest to a greater degree. Overall, GSIs would have liked more information about the cluster organization and content prior to the beginning of each quarter. They believed that such information would not only have streamlined their work, but also fostered a greater sense of inclusion and teamwork.

Finally, across clusters, grading was a time-consuming task. GSIs were responsible for grading materials not only from labs and discussion groups, but from the larger lectures as well. This was apparently particularly burdensome for GSIs from the non-science clusters, where essay and short answer test questions are the norm. In contrast, GSIs in science clusters were more likely to assist with the administration of multiple choice examinations, which are generally easier to grade.

Many of the time-related concerns discussed in this section were more pronounced in newer clusters and in clusters where a larger proportion of faculty were new to the program. In contrast, in more seasoned clusters – where GSIs believed faculty were more likely to share the leadership role and have clarity regarding the overall course goals – GSIs perceived a more manageable workload and said they were more likely to feel they were part of a true team.

***Community***

The clusters are designed to have a high degree of faculty/GSI collaboration and, overall, GSIs were pleased with the way these interactions occurred. In one case, the focus group participants described their team as "a happy family." GSIs were grateful for the opportunity to work with faculty members they described as "distinguished," and they reported both an intellectual relationship and a level of camaraderie that some had "never had in graduate school before." As one of the GSIs explained, "I felt treated more like a peer and a colleague by these faculty than I do with any other faculty except perhaps my advisor…I felt like they were interested in what I had to say." Another said it was "much more of a group effort … than I've ever experienced before."

Many GSIs also emphasized the close working relationships they had with each other:

> *One of the things that was nice, too, was the way we all shared material. I never felt like other classes where there was a competition among the TAs or we had to horde materials from each other. We shared handouts and talked on the phone and strategized together and it was wonderful.*

This fellowship extended beyond the classroom, as well, and it was not rare to hear of GSIs socializing together. For example, one GSI explained that his team worked "really well together, everybody likes each other, and we give parties together." Another said that even two years after her particular cluster ended her team "still gets together." So while this close working relationship with faculty and other GSIs provided valuable opportunities to learn about course development and academic disciplines, it also offered opportunities for professional and personal socialization.

The yearlong cluster course design also allowed GSIs to build closer relationships with students. One GSI said that knowing he was going to "stick with them throughout the whole year" motivated him to get to know the students better than he might have otherwise. Many reported that up to half of their seminar students came from their discussion sections. As such, the seminar gave GSIs the opportunity to deepen their relationships with some students and create new bonds with others. Other cluster activities like field trips and social events provided additional opportunities for the graduate students to connect on a personal level with their students:

> *In the first quarter right before the mid-term we had this big barbecue bash and they all came up and sat around and had soda and hamburgers and we were there informally for about two hours, just going to tables and sitting with small groups.*

These connections have lasted and many GSIs said they have continued to keep in touch with students from their discussion sections and seminars well after the end of the cluster course, offering advice, providing letters of recommendation, serving as sounding boards and mentors, and, in one case, even attending a professional conference together.

***Satisfaction***

By and large, the GSIs viewed the cluster experience positively. As one GSI put it, "It's the best teaching experience I've had at UCLA, far and away." In the focus groups, the GSIs cited a number of specific components of the cluster experience that were particularly positive, ranging from the structure of the course itself to the ways that the course affected their own research. Most of these issues are addressed in detail in the previous subsections that addressed GSIs' intellectual development, their connections with faculty and students, and their appreciation for the opportunity to design, and deliver their own seminar courses. Indeed, the seminar experience was perhaps most central to the GSIs' positive experiences, and the next section addresses this aspect of the program in greater depth.

***The Capstone Seminar Experience***

> *I would [do it again] just for the experience of the seminar.*

In contrast to many apprentice positions, GSIs in the cluster courses build directly on their experiences with the discussion sections in the first two academic quarters to take on full responsibility for all aspects of their own seminar courses in the spring. By and large this is a positive experience and every year, across clusters, the GSIs said they would teach in another cluster course specifically because of the seminar component. Not only did GSIs gain valuable teaching experience, but they reported that the relatively lighter workload (as compared to the fall and winter quarters) may have facilitated progress in their own degree programs.

It became clear through the interviews that the capstone spring seminar offered GSIs a rare chance to learn about course design and to experiment with pedagogy while still in the process of graduate training. This was particularly valuable to those GSIs planning careers in academia because they had the opportunity to develop skills and techniques related to course content selection, instructional approaches, and evaluation strategies – an opportunity few of their peers will have had. One GSI, for example, called the seminar a "good challenge," explaining that he now has "the experience to start from ground zero" with another course.

Since graduate student instructors know from the time they are hired by the program that they will be responsible for designing and delivering a seminar in the spring quarter, it is not surprising that some began the academic year already knowing what their seminar topics would be. More commonly, however, GSIs allowed their topics to evolve and emerge based on the tone, content, and delivery of lecture material. Across the board, GSIs agreed that the seminar should directly relate to the course as a whole, and many of the seminar topics developed from what the GSIs saw as gaps in what had come before. For example, one felt the students were not as engaged with the subject matter as they might have been, so she chose a topic and readings "that we could easily apply to our personal experience." Another felt that students had not been exposed to "the counterpoint," so he chose a seminar topic that challenged the ideas put forth in the earlier lectures. Yet another said she felt strongly that the seminar should be a "capstone," explaining, "I really

wanted it to be a reflective period for students. And I wanted them to end on a good note and be able to actually see how much they've learned over the year." So while in most cases GSIs used their own research as a starting point for their seminar topics, they remained flexible in their exact approaches so that they could meet what they identified as their students' needs.

A prerequisite for becoming a GSI is significant prior teaching experience. For the majority of the GSIs, however, the bulk of their teaching experience was as teaching assistants, and the spring seminar was the first course they had designed and delivered on their own. Several said they began the academic year "nervous about how it's going to go." One GSI said she "saw the seminar coming and that was the big unknown," but she relaxed after attending the professional development workshops provided by the cluster program. Those GSIs who did not come into the program with experience designing their own courses found the workshops "really helpful," noting that "talking with other graduate students who had done it before, about their experiences" allowed them to relax and helped them to generate concrete ideas for their own seminars.

Although several GSIs commented that "everyone's seminar is so highly idiosyncratic," limiting the utility of the workshops, everyone agreed that the support provided by the cluster staff was a vital part of the program. In addition to calming nerves, the workshops were a good opportunity for GSIs to learn about logistical issues like putting together course readers and applying for Office of Instructional Development mini-grants. At the most basic level, they provided structure for the GSIs. As one person put it, "the workshops forced you to have something together. It's good to have deadlines."

The seminar experience had benefits that went beyond the basics of course development. One GSI described the entire cluster experience as a "big textbook on teaching." Another elaborated on this point, explaining that "seeing so many different types of professors teach, and seeing what works and what doesn't" was valuable in her own development as a teacher. And unlike more traditional TA experiences, the cluster program afforded graduate students the opportunity to put their new skills to work immediately through the spring seminar. As one individual explained:

> *I kind of developed a sense of myself as a teacher through my TA experiences, but you're always in somebody else's shadow as a TA. And here I got a better sense of the kind of teacher that I'm able to be.*

Many of the graduate students who taught cluster seminars said their own research was also affected by the experience. For example:

> *I think teaching is the best way of learning. And if you're teaching something that's central to your research interests or related to some research interest of yours, then it's going to be useful. It forces you to formulate the ideas in an accessible way.*

Another GSI echoed these ideas, saying she was grateful for the opportunity to leave "solitary dissertation mode" and make her research writing "comprehensible to … people who were just learning." In fact, communicating their own research ideas to first year students was particularly valuable to many of the GSIs. Some especially appreciated what they called the "generation gap" that helped them "not to be stuck in (their) own preconceptions" and to be exposed to a "fresh perspective."

As is evident from earlier subsections, GSIs formed close connections with the students in their discussion sections. These relationships carried over into the seminars because the GSIs felt at that point they "knew the students well." They had "already interacted with them for so long that it was

a more relaxed atmosphere." Although not all of the GSIs had seminar enrollments made up of students they knew previously, this sentiment was nevertheless consistent across interviews. Because the seminar followed two academic quarters of a shared experience, the GSIs believed they had been able to establish a "common language" and a common body of knowledge that allowed for a greater sense of community from the outset.

Working with the students in the spring seminars gave GSIs the opportunity to reflect on and appreciate the changes students underwent as they participated in the clusters. In particular, the GSIs were impressed with the intellectual growth of their students and their developing ability to think critically and with interdisciplinary lenses. GSIs noted that "you can see [students] change over the year" in areas including writing, reading, critical thinking, and scientific reasoning. One GSI likened the process to learning how to drive: "the first quarter is like drivers' training; … the second quarter they get their learners' permits;… and the third quarter they receive their drivers' licenses." In some cases, GSIs felt that their students performed at a level "worthy of graduate students" by the end of the year, and that work of this caliber made the GSIs' jobs even more rewarding. It is important to stress that none of the GSIs could be sure whether these changes were simply the result of maturation over the year or whether the changes were specifically attributable to the cluster experience. Nevertheless, it seems reasonable to conclude, as this GSI does, that the cluster had some effect:

> *I don't think separate courses, even if they technically covered the same material, would have done it. Because getting them for a whole year, continuously [allows me to give] a seminar to my students that I just couldn't give to students that had one quarter of physics and one quarter of biology, even though that's technically all they had.…They're willing to look for large patterns now.*

All of the graduate student instructors reported being extremely satisfied with the seminar experience. One described it as "an upper…. It was the highlight of the week." Another said he "didn't realize how much fun the actual discussions would be." In fact, many of the GSIs said they were initially nervous about "filling the three hours" of the seminar, but all who expressed this concern said that after the seminar began they realized that their fears were unfounded because the students were engaged and talkative, and the time went by quickly and smoothly.

## SECTION FIVE
## THE CLUSTER EXPERIENCE OF FACULTY MEMBERS

### Introduction

There are over 1200 faculty members on the general campus of UCLA and an equal number of Academic Senate members in the Health Sciences. In addition to several Nobel laureates, this group includes some of the most noted humanists, artists, economists, and scientists in the nation. UCLA faculty members also count among their ranks a large and distinguished group of scholars who are recognized as some of the best teachers of graduate and undergraduate students in the United States.

Few of our entering freshmen have the opportunity to meet and become familiar with the work of UCLA's teacher-scholars. While our freshman students receive an excellent education in their lower division courses, 52% of pre-major and GE offerings are taught in large lecture courses by lecturers and other non-ladder faculty.[13] One of the major aims of the cluster program is to give freshmen at UCLA an opportunity to become more familiar with the ideas and work of ladder faculty members across campus.

Bringing together a group of distinguished scholar-teachers in a collaborative teaching venture—and one aimed at showing freshmen how different disciplines address a common problem—poses a number of significant challenges, however. In order to meet these, faculty must:

- Design and deliver a cohesive, integrated course that clearly conveys to a freshman audience the ways in which different disciplines approach a shared subject matter.
- Develop assignments and class activities that encourage students to improve certain academic skills necessary for learning in a research university.
- Engage in a collaborative teaching process that provides the opportunity to become learners as well as teachers in a community of scholar-teachers.

  The following assessment of the faculty experience aims to gauge the extent to which faculty members felt that they achieved these goals.

### Methodology

In order to understand faculty members' experiences vis-à-vis the issues and goals outlined above, individual interviews were conducted with those faculty members who taught in the cluster program during the 2000-01, 2001-02, and 2002-03 academic years. Researchers from UCLA's Office of Undergraduate Evaluation and Research interviewed a total of 49 faculty members.[14] Each of the one-on-one interviews lasted between 30 and 60 minutes and typically took place in the faculty member's office. Although an interview guide was used (see Appendix B), the researchers remained flexible in their approach to allow unanticipated issues to emerge.

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[13] *Report of the Joint Administrative/Senate Taskforce on Undergraduate Education in a Research Context,* May 28, 2003, Table 3.4, p. 27.

[14] Three faculty members from clusters taught in 2002-03 were interviewed too late to have their interview data included in this report. One faculty member from 2000-01 declined to be interviewed. One faculty member from 2000-01 and another from 2001-02 asked not to have their interviews audio taped, their comments are included.

This data was supplemented by interview and focus group data collected in the first two years of the program. In the summer of 1999, cluster administrative staff conducted unstructured interviews with the coordinators of the four clusters offered in the previous academic year. In 2000, the Office of Undergraduate Evaluation and Research conducted focus groups, by cluster, with the 16 faculty members who taught in the 1999-2000 academic year. This data was reviewed in preparing this report to ensure that the main themes reported here accurately reflect the experience of faculty in those years of the program, as well.

This approach exposed a comprehensive understanding of the cluster faculty experience with particular attention to the following issues:

- Faculty motivations and reservations about participating,
- Experiences in cluster course development,
- The intellectual development resulting from the experience,
- The workload involved in cluster teaching compared to other teaching experiences,
- The role of academic community in building and maintaining the clusters, and
- The capstone seminar experience, for those faculty members who taught spring seminars.

The faculty members' individual interviews were audio taped and transcribed. Following transcription, the analysis process consisted of reading and re-reading interview transcripts to develop a codebook containing analytic categories relevant to the issues at hand. Using the data analysis software program ATLAS.ti, the research team used these categories to code all of the interviews and to sort responses. A subset of interviews was coded by multiple researchers to ensure reliability across the research team. Based on these data collection and analysis efforts, the following discussion provides a description of the cluster faculty as a group as well as their reflections on their individual cluster experiences.

**Profile**

Over the last five years, the majority of faculty members who participated in clusters were ladder faculty (Table 5.1). In the program's first year, when only four cluster courses were offered, ladder faculty participation was at a high of 89%. As the number of cluster courses grew, ladder faculty participation declined and stabilized at around 70% (as compared to 48% ladder faculty participation in pre-major and other GE offerings)[15].

**Table 5.1 Demographics of Cluster Faculty**

| | Overall Faculty Population | | | | |
|---|---|---|---|---|---|
| | **N** | **% Female** | **% Under-represented*** | **Ladder Faculty** | **% Seminars Taught by Faculty** |
| 1998-1999 | 18 | 11% | 11% | 89% | 61% |
| 1999-2000 | 19 | 26% | 11% | 74% | 68% |
| 2000-2001 | 29 | 28% | 3% | 72% | 76% |
| 2001-2002 | 31 | 35% | 6% | 74% | 71% |
| 2002-2003 | 37 | 30% | 14% | 68% | 62% |
| **Average** | | **26%** | **9%** | **75%** | **68%** |

* Includes faculty who are African-American, Latino/Chicano, or Native American

Table 5.1 also indicates that the average number of women who taught in clusters is 26%—a slightly higher percentage than the percentage of women on UCLA's ladder faculty (24%). Finally, Table 5.1 shows that an average of 68% of the faculty who taught in the cluster program taught seminars. This includes ladder and non-ladder faculty and individuals who were hired to teach seminars only but who did not teach in the lecture portion of the course.

The faculty members who participated in clusters during this five-year period represented a significant cross-section of UCLA's academic units (Table 5.2). The departments with the largest representation were among the largest departments on campus (English, History, and Sociology), with the notable exception of Earth and Space Science, which provided seven faculty members to the cluster program, despite its relatively small size. Since a number of faculty members taught in the cluster program for more than one year, the unadjusted total exceeds the number of distinct individuals who participated. Adjusting for those who taught more than once, 73 faculty members participated in clusters during this five-year period. A complete list of these faculty members is given in Appendix A.

[15] See footnote 13 for complete citation.

**Table 5.2 Departmental Affiliations of Faculty in Each Program Year**

| | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | TOTAL |
|---|---|---|---|---|---|---|
| Anthropology | | | 1 | 1 | | **2 (1)** |
| Atmospheric Science | 1 | 1 | | 1 | | **3 (2)** |
| Civil & Environmental Engineering | 1 | 1 | 1 | 2 | 1 | **6 (2)** |
| Cluster Program | | 2 | 3 | 3 | 4 | **12 (4)** |
| Dentistry | | | | | 1 | **1 (1)** |
| Earth & Space Science | 3 | 3 | 2 | 2 | 2 | **12 (7)** |
| Economics | | | | 1 | 1 | **2 (1)** |
| Education | | | | 1 | | **1 (1)** |
| English | 3 | 1 | 4 | 2 | 2 | **12 (8)** |
| Geography | 1 | 1 | 2 | 1 | 1 | **6 (3)** |
| History | 3 | 6 | 4 | 3 | 2 | **18 (11)** |
| Industrial Relations | | | | | 1 | **1 (1)** |
| Institute of the Environment | | | 2 | 2 | 4 | **8 (2)** |
| Law | 1 | 1 | | | | **2 (2)** |
| MCD Biology | | | | | 1 | **1 (1)** |
| Medicine | | | | 2 | 2 | **4 (2)** |
| Molecular Biology | | | | | 1 | **1 (1)** |
| Organismic Biology, Ecology, & Evolution | 1 | 1 | 2 | 1 | 2 | **7 (3)** |
| Physics & Astronomy | 1 | 1 | 1 | 1 | 1 | **5 (2)** |
| Political Science | | | 1 | 2 | 1 | **4 (3)** |
| Psychology | | | 3 | | | **3 (3)** |
| Social Welfare | | | | 1 | 1 | **2 (1)** |
| Sociology | 3 | 1 | 2 | 3 | 5 | **14 (8)** |
| Urban Planning | | | | 1 | 2 | **3 (2)** |
| Writing Programs | | | | | 1 | **1 (1)** |
| **TOTAL** | **18** | **19** | **28** | **30** | **36** | **131 (73)*** |

* The number in parenthesis represents the number of "unduplicated" faculty members who participated from each department over the five years of the cluster program.

## Research Findings

The faculty interviews provided rich insights into the faculty experience in the cluster program: cluster participants discussed in some detail how and why they became involved in clusters, as well as the challenges and rewards of that experience. The most significant findings from these interviews are presented below. The subsections that follow include discussions of the motivations and reservations that faculty members voiced regarding their cluster participation, their experiences in cluster course development, the intellectual development resulting from the experience, the workload involved in cluster teaching, the sense of community faculty members perceived in the cluster, and, for those who participated, the spring capstone seminar experience.

### *Motivations and Reservations*

When asked why they decided to join a cluster, faculty members identified a variety of reasons that contributed to their decision. Over half those interviewed mentioned some aspect of the course content as being one of the things that attracted them to cluster teaching. A significant number also cited pedagogical reasons for joining a cluster team. Additionally, some faculty members described themselves as moved by an invitation from their peers to teach in a cluster.

*Interest in Course Content*

Those faculty members who identified the course content as a reason for joining a cluster cited at least one of three different ways in which course content featured in their decision. First, several faculty members said they were attracted to a particular cluster because of an existing interest in the course topic. As one professor described her decision to coordinate the "History of Modern Thought" cluster:

> *(M)y scholarly life has always been on intellectual history in the 17th and 18th centuries. So, when I was asked if I would coordinate it, I was thrilled to do it because I love these texts. I love Hobbes and Locke, Montesquieu and Voltaire, Rousseau and Adam Smith… [These are] some characters I've been with for 40 years.*

In other cases, the course topic invited faculty members to explore new or developing interests, often involving a move towards another discipline. The interdisciplinary nature of the clusters was the second content-related reason faculty members gave for joining a cluster. A few respondents identified themselves as already interdisciplinary or "in between disciplines" in their approach; others identified themselves as being "attracted to the idea of interdisciplinarity" and therefore happy to teach in an interdisciplinary course. Still others were seeking the opportunity to learn about another discipline. In these cases, the cluster provided an attractive venue for exploring new interests and ideas.

Finally, those who said they were drawn to clusters because of the course content often drew connections between the course and another program that the faculty members hoped to create or sustain at UCLA. Thus, for example, almost all of the many faculty members who have taught in the Global Environment cluster are also members of the Institute of the Environment, a program which both provides a pool of potential cluster instructors and which fulfills its teaching mission by offering this cluster course. As one professor pointed out, it was in the context of "working on the development of the Institute of the Environment" that the idea for the Global Environment cluster came into being in the first place.

*Interest in Undergraduate/Freshman Teaching*

While content-related motivations led many to teach in clusters, approximately a quarter of the faculty members who joined clusters voiced a variety of pedagogical reasons for doing so, as well. Several mentioned their interest in teaching freshmen specifically or undergraduates more generally. Two faculty members whose home departments are in the medical school pointed out that the clusters provide one of the few formal opportunities they have to teach undergraduates. Another faculty member drew a link between teaching freshmen and reinvigorating his teaching:

> *It seemed to me … like it would be a fresh kind of challenge teaching and an opportunity to get to some of the students … early in their academic career when they're fresher and more eager…. So I saw it as … a chance to refresh my own experience of teaching and at the same time to capture and maybe try to make something long-term productive out of the freshness of the students at this level of education.*

Another professor framed this opportunity in terms of "catching" students early in their college career prior to their focusing on the requirements of a major and pre-professional coursework. These and other faculty members suggested that teaching freshmen proved to be at once more satisfying and more conducive to introducing students to broader intellectual horizons.

A number of faculty members who joined clusters expressed their belief that teaching is central to their role in the university. One said that "teaching is the most important thing that the university does." Another professor remarked:

> *We're all hired and promoted on the basis of our research talents and accomplishments, but our job—what the state pays us for—is to educate these people, and taking that seriously and enjoying taking it seriously are what defines the right person to teach these clusters.*

For those who expressed an interest in and commitment to improving the quality of education for undergraduates, the yearlong format of the clusters was regularly identified as a way to offer a more sustained and substantial educational experience to undergraduates. One instructor commented:

> *These [standard] classes are so big, and the quarters go so fast. You know, it's just like bam, bam, bam. So the idea of having a class that lasts the whole year with different disciplines incorporated into it sounded like a good idea .*

*Invitation from Peers*

About a quarter of those interviewed acknowledged that personal ties with other faculty members were central to their participation in clusters. Sometimes this tie was seen as generating a kind of friendly peer-pressure, as when one professor said that the coordinator had "twisted [her] arm:"

> *He twisted my arm. So I did it. …[P]artly because I feel that this department should be represented [in this cluster]…. [A]nd I have a kind of broad background [in the course topic]. So, that's why I decided to do it.*

Another professor said that his previous experience in the cluster had made it "hard for [him] to decline" when asked to become its coordinator. In these cases, collegial relationships provided a significant impetus for a faculty member to consider participating, but a larger sense of purpose was also a factor in the professor's ultimate decision. Thus, the pull of professional relationships combined with dedication—to a subject matter and to teaching it well to undergraduates—motivated participation in clusters.

The fact that some amount of peer pressure was not infrequently wielded to get faculty members to join clusters suggests that cluster teaching is not viewed as being entirely without costs. Faculty members' reservations about participating were due, for some, to the workload involved (see the *Workload* subsection below) and for others to departmental demands and expectations, which were either explicit or, if only implicit, felt by the faculty member to weigh against cluster participation.

*Departmental Demands and Expectations*

Although the cluster program provides course releases to departments whose faculty members participate in clusters, some departments perceived the cluster as detracting from their efforts to provide their departmental course offerings. Although they might have been willing to "loan" a faculty member to cluster teaching temporarily, departments and faculty members alike worried about not having their permanent faculty teaching their courses. As one faculty coordinator asked rhetorically, "Why don't I get these good faculty [members] to stay forever with the cluster? Because their departments want them back." Echoing this view, another professor observed,

> *I really haven't been able to offer what I used to offer to our own program… And … my chair very politely asked if I wouldn't mind teaching my upper division undergraduate course.*

Another faculty member in a small department pointed out that in "departments like ours, … we teach majors and then we also are always looking for majors, [and] the cluster … is not really a feed[er]" course for majors in that department. A faculty member from a large department put it this way: "[A]nybody who teaches a core course—which includes most people in our department—to pull them away is a big, big issue."

Some faculty members were also aware that even if their departmental offerings were being adequately covered, other departmental responsibilities and interactions suffered when they devoted substantial time and energy to cluster teaching. One junior faculty member noted that the team meetings for his cluster regularly conflicted with department's interviews of job candidates, and he felt his absence from these departmental meetings posed a significant problem for him as a junior member of his department. This conflict factored into his decision as to whether he could continue teaching in the cluster in the following year. As he pointed out, "junior faculty … really have to be there and don't have as much flexibility with a lot of their other responsibilities on campus [as do senior faculty members]." A senior faculty member noted that the core courses in his specialty were being taught largely by temporary instructors. Although the quality of the instruction might have been acceptable, he felt that his absence from teaching those required courses meant he wasn't known to the students majoring in that area and that this was a valuable departmental function to perform.

Nevertheless, not all departments were opposed to their faculty members teaching in clusters. In general, the larger departments, including English, Sociology, History, and Political Science, were characterized by the faculty members as, in some cases, unaware of their faculty members' participation, in others as "neutral" about it, and in others as positively encouraging that participation. One professor from a big department quipped, "As my chair says, we're all replaceable." Even a small department like geography was characterized as generally enthusiastic about its faculty members teaching in clusters, because they felt it was important to have a "presence" in the clusters.

### *Course Development*

As other sections of this self-review indicate, the process of planning and implementing a cluster course is typically a lengthy and elaborate one. The faculty discussed various aspects of this process in the interviews, including building and maintaining a teaching team and agreeing on and developing the course curriculum. In addition, cluster instructors spoke at length about course goals, or what they wanted their students to learn from the cluster.

#### *Team Building*

Most faculty members recognized that in a collaboratively taught course, course development centrally includes the activity of team building. In some cases, this process was described as one of "self selection," as when the Global Environment cluster seeks participants from faculty housed in the Institute of the Environment. As one faculty member explained,

> *If somebody is in any way affiliated with the Institute of the Environment, you know that they're …not that kind of faculty [member] who just wants to sit in his or her room and do their work.*

Of course, self-selection of this kind doesn't eliminate the need for further work to forge a more significant bond between the team members. The same professor added:

> *I think we … became a team. … I think there was good chemistry. There was mutual respect among all of the people and … the joy of give and take.*

This process of becoming a team inevitably involves meeting, and meeting regularly, as a team. Almost every faculty member interviewed underscored the meeting-intensive nature of cluster teaching and cluster planning. Virtually all the cluster teams relied on weekly team meetings during the fall and winter quarters, usually lasting 1.5 to 2 hours, to handle the wide range of issues that came up, including such things as planning the content of discussion sections, developing writing assignments, writing exams, developing grading schemes, working through individual students' problems, and working on the integration of the lectures between course topics or instructors. Because of the crucial nature of these meetings and the other demands of collaboration, efforts to foster a strong sense of community can be invaluable. (See the further discussion of *Community* below.) One coordinator especially emphasized the importance of frequent team meetings and social events among the faculty and GSIs to cement the teaching team bonds. He observed that "we could call on people for extraordinary efforts because of the sense of community" that the weekly meetings and regular social interactions fostered.

The importance of team meetings even prior to the finalization of the teaching team and the start of the course was also emphasized in several of the interviews. Two coordinators whose teams suffered from tensions within the teaching team strongly encouraged this team courtship, so to speak, as a way to ensure the compatibility both intellectually and personally of the team members. One coordinator pointed out that to teach with a group of instructors you don't know was "like starting to live together without dating." In some cases, the "blind date" approach to team building was successful, but it was clearly more risky.

Other cluster instructors emphasized that team building depended on inculcating a sense of mutual respect. This seemed to be especially pressing in those clusters in which the course content was politically and personally charged:

> *You're … discussing the politics of race in the course material, but there's also a kind of meta-narrative of the politics of race in terms of how the course unfolds and how it ends up being taught and who's speaking when and about what and all that. And it just creates a lot more that has to be worked out. … [I]t took awhile [for] all the faculty and TFs [to] have a really good rapport and trust of one another.*

Although the meta-narrative referred to above may not have had a parallel in all the clusters, the larger experience of building trust and rapport over time certainly did. This reality—that team building took time—points to the fact that even if faculty members met and got to know each other prior to teaching the course, much of that work inevitably occurred in and out of the classroom over the course of the academic year.

Cluster teams that taught together for more than one year regularly voiced their satisfaction in being able to continue working with a group with whom they had become close. This satisfaction often had a personal component, but intellectually and pedagogically it appeared to be due to a sense of confidence in one's team. It involved understanding what the other instructors were going to present and how, and having the confidence to allow them to handle some material without feeling the need to revise or repeat it. This then allowed teams to refine the lectures and syllabus. As one faculty member put it, the "willingness" not to "have to fill airtime with our own stuff" was born out of the comfort and trust that came from teaching together:

> *I think just the familiarity of working together, having worked together for a year and … knowing each other and knowing what the other is going to say [helped us relinquish air time]. Knowing what somebody's take on something is, … you [may recognize that] they're saying it in a different way, but they're saying it plenty fine, so you know there's no reason to have to do it again.*

In this way, the team could focus together on developing a more streamlined storyline to present to the students.

*Fostering Shared Vision and the Role of the Coordinator*

The preceding discussion of team building underscores the close connection between interpersonal relationships and course development. Another area where these two aspects of collaborative teaching met was in the role of the coordinator, which encompassed a variety of responsibilities. First, the coordinator played a managerial role—very often arranging everything from guest lectures, to film nights, schedule changes, and class barbeques. This managerial work was time-consuming, involving, as one coordinator put it, "the endless shifting sands of the administrative side" of the job, with "15 emails a day" and attention to a host of details, as when "this person needs to do that, so I need to get approval from these other four people that I am going to move his lecture over here" and so on.

But the coordinator did more than manage the operation of a complex course. The coordinator also guided the direction of the course overall—in many cases by recruiting the teaching team (at least in those years in which the teaching team changed). One coordinator said that this job, of "getting the best team on board," was "the most important part" of coordinating the course and the most "uncertain." This importance was highlighted in the previous discussion of team building. The intellectual leadership of the coordinator often extended beyond team selection, however, and included working with the team in its efforts to articulate both the course objectives and the way these were to be realized in the various aspects of course design and implementation. A number of faculty members—coordinators and team members alike—emphasized the importance of having a coordinator who could provide this sort of leadership to the cluster. This was a delicate task, however, since, as one coordinator pointed out, "faculty [members] typically don't like being told what to do."

Problems appeared to be exacerbated when a team member and the coordinator had significantly different styles of planning and organizing both their individual and collective efforts for the course and different expectations about the content and goals of the course. One faculty member described her coordinator as "disorganized" and as having an inadequate vision of where the course was going, and these perceptions, along with her own tendency to be "very organized," ultimately led to this instructor's enduring frustration with the course and the team. Other faculty members who felt their clusters hadn't been effective also tended to cite "personalities," along with a lack of leadership, as contributing centrally to the problems.

Long-term frustration need not be the outcome of such divergent styles, however. One faculty member commented that she felt initially uncertain about "how I plan a course [when my approach] is not the same as how [the coordinator] plans a course." In this case, the team members were often in different cities during the planning phase, and most of the planning took place over email, adding to the uncertainty about how the team's collaboration would work out. Happily, the first day of this cluster—which was conceived and delivered largely by the coordinator— was so positive for this instructor that it invigorated her sufficiently to decide, "I can fit into anything." Here, the divergent planning styles and expectations of the cluster were overcome by the ability of the coordinator to elaborate his vision of the course in the classroom and the other instructor's willingness and ability to be flexible in bringing her contributions into that framework.

Ideally, the coordinator can guide a team without dictating to it. This role was perhaps easiest to assume when the team shared a common vision of the goals of the course and when they had done the team-building described in the previous subsection. One instructor described the commitment

to social change that played a role in giving his cluster team a shared energy, vision, and commitment to the course:

> *And what has kept those four together is they all believe in the mission of the course, which is to teach the masses, basically—teach people that we would not otherwise reach about our message regarding the environment. … What drives us is that the environment is falling apart out there, and we want to help fix it. … And we know – each of us knows – that our own disciplines can't do it [alone]. … [S]o that's what … brought us together, [and] that's what keeps us together.*

Broadly speaking, the aspiration to affect the way students understand themselves and their world and to help them bring this understanding to bear on large social issues both now and once they leave UCLA was voiced by at least some members of almost every cluster. The additional insight expressed in the quote above is that at least in some cases, this goal was best achieved when faculty members across different disciplines were galvanized around a common mission to educate students about issues that have a complexity that defies disciplinary boundaries. When this need for interdisciplinarity was recognized by the whole cluster team, that recognition encouraged the effort required to teach collaboratively and perhaps to accept the guidance of the team's coordinator.

*Achieving Interdisciplinarity*

Recognizing the need for interdisciplinarity does not, of course, ensure that an integrated interdisciplinary product will be achieved. Most faculty members reported that they found achieving integration across disciplines very challenging, and only a few expressed satisfaction in this area. Although many faculty members noted that they came closer to achieving interdisciplinarity after teaching a cluster for two or three years, this issue remained difficult and time-consuming to tackle.

The primary challenge, as described by many faculty members, was in integrating the course material—material that spanned different disciplines that often contained complex debates both about appropriate methodologies and about the significance of different issues, findings, and scholarly work, not to mention material presented by different faculty members with different teaching styles and intellectual agendas. Members of virtually all clusters acknowledged that the first year of teaching a cluster (or the first year that a given team taught together) did not yield a perfectly integrated course. One faculty member insisted that "the expectation that people will come from different disciplines in any interdisciplinary course and mesh into a seamless [whole], and do that in the first offering of the course, is absurd." Another instructor voiced a similar, if more understated, perspective:

> *I think that most people probably underestimate the difficulty of … not only having a series of faculty [members] be able to work closely together on a course, but having a series of faculty [members] from very different kinds of cultures work together on a course.*

Different teams handled the challenge of integrating their material in different ways. Some cluster teams came together over months in advance of the course to discuss collectively the issues of course design—that is, "how to structure th[e] course and what we wanted to include and how to approach it and all kinds of different … themes or perspectives that we could use." One cluster created a syllabus entirely around case studies, ensuring a measure of integration by having all the material presented refer to the case at hand. Others mixed the case study approach with in-class occasions for other forms of instructor dialogue and debate. (See, for example, the IrD case study in Section Six for an account of their "tag team" approach to lecturing.) Still others met less often

as a group and aimed at somewhat looser linkages between the different instructors' material rather than trying to develop a single storyline.

For some faculty members, the value of having an integrated and to some extent shared message (even if the message was that there's no one right answer to a complex problem) motivated them to work together much more intensively. For others, the different styles and messages were themselves pedagogically significant and allowed for more unrehearsed contributions:

> *If you have faculty disagreeing all the time … that's the real world. These are complex issues. There are no clear answers. But I think students, particularly freshmen, want clear answers … and it's kind of a rude awakening to the messy world of universities to run into that in the first quarter of college.*

As this faculty member pointed out, even in the less orchestrated cluster offerings, faculty continually struggled with how to help the students navigate the complexity of the course. This problem is discussed further below in the *Intellectual Development* and *Workload* subsections.

The problem of how, and to what extent, to bring together the divergent views and expectations of different team members was, in some groups, reflected in sometimes lengthy, and sometimes heated, debates about what readings to assign. Given the interdisciplinary nature of cluster topics, there was rarely one textbook that could capture all the themes and approaches presented in the course. One professor described the

> *usual educational exasperations of finding out that the book that you want to use … somebody else thinks is junk from the perspective of some other discipline, and the book that they want to use seems [deficient] from the perspective of your discipline.*

A number of teams found that their work together progressed more smoothly once they were able to agree about which texts to use (and, very often, as discussed above, after they were able to agree to cut back on the amount of material that each expected students to cover from their own disciplines). Agreeing on readings and assignments and being willing to cut them back to manageable amounts was, according to one professor, also predicated on trusting and knowing the team:

> *[We] found in the first year [that] the reader was so long that … we were doing editing as we went along…. I think … we should have trusted ourselves better that we could really unpack fewer things better for the students. … [I]f there were any advice I would give anybody who's trying to plan one of these, it's to err on the side of less rather than more. And to really believe that … the material you present will makes sense in relationship to other material and … to trust yourselves as a group.*

Once again, it appears that successful collaborations evolved through the combined intellectual and interpersonal growth of the team.

### *Intellectual Development*

Almost all the cluster faculty members interviewed reported that the cluster experience provided them with the opportunity to grow intellectually. Some spoke of having their horizons broadened, others of a more direct positive impact on research, and still others of the benefits to teaching. A small group found that the cluster experience positively affected their professional activities outside the university.

*Broadening Horizons and Positively Affecting Research*

A majority of the faculty members reported that cluster teaching benefited them intellectually. Over half acknowledged with enthusiasm that their horizons had been broadened by listening to their colleagues' lectures. A number described this broadening in terms of becoming a student again. One professor noted that he enjoyed listening to and learning from his colleagues in the cluster, saying "many of us … [would] on some level like to go back to college again." Another commented:

> *[W]hat I've been able to get in these four years is a kind of education from other faculty [members], and I've learned where I am missing whole dimensions to what I thought … I knew.*

Given that cluster courses are designed to address topics whose complexity demands interdisciplinary treatment, it should not be entirely surprising that the faculty tended to become learners in this way—that is, by recognizing that they were "missing whole dimensions" of what they "thought [they] knew."

Many faculty members reported that the cluster allowed them to reflect on the way in which different disciplines approach shared questions. Some spoke of having a "different way of seeing the world," others of growing "tremendously" intellectually. For some, this growth had direct implications for their research, as it did for the professor who described the interaction with his colleagues as "opening up really new doors ... in my own research." Another instructor appreciated the fact that the exposure to other disciplinary approaches allowed him to assess the strengths and weaknesses of his own discipline, as well as others, causing him to ask new "questions …about what I do." The majority, however, did not draw any direct links between their broader intellectual growth and their research."

*Pedagogical Benefits*

The benefits of cluster teaching were not limited to the effects on faculty research or the contribution to intellectual development in personal terms. At least a quarter of those interviewed explicitly remarked on the positive effect cluster participation had also had on their teaching. Many faculty members believed that watching others teach stimulated them to reflect on and improve their own teaching, often by experimenting with pedagogical techniques used by their colleagues. Others felt that the mere presence of their peers in the classroom motivated them to work harder on their lectures. One professor combined these two insights in noting that

> *this experience … forces you to be a little more reflective about what it is you're doing and why you're doing it and why someone else does it differently than you do. So it offers that very nice interaction that allows you to grow as a teacher.*

Another instructor admitted that he put in extra work on his slides and PowerPoint presentations, explaining:

> *I think when you're teaching a class all by yourself, you can get a little sloppy or a little lazy. … Whereas, if you know that a couple of your colleagues are right there and they're teaching the class with you, … [you] want this to look really good*.

Many of those who felt that they grew as teachers connected this judgment with their reflections on the challenges and pleasures of teaching freshmen, which was itself a learning experience for some. One instructor said she "learned a lot about freshmen," while another acknowledged "being stretched as a teacher … to teach 140 17- and 18-year-olds." Some of the cluster instructors noted

that, despite their obvious talent and zeal for hard work, freshmen often come out of high school with skills and experiences that are not always adequate to the demands of college. As one professor put it: "They're sharp, but they know nothing." Another pointed out that many freshmen have "little personal history to fall back on" as a way to engage with the topics presented in the cluster. As a result, team members in at least three clusters pointed out that they had to find ways not only to help the students learn how to learn in the university but also to frame the material they were presenting in a way that was accessible and stimulating to 18 year-olds. One instructor said that the cluster experience

> *really made me stop and realize who the audience is and that … you have to do a lot more work in framing things so [freshmen] can relate to them.*

A number of instructors appreciated that this effort helped them grow as teachers and communicators more broadly. One professor pointed out that her efforts both to frame the material so that freshmen could relate to it and to deliver that material at a freshmen level were beneficial not only to her development as a teacher, but also as a writer and speaker. Because teaching freshmen required her to "focus on the big picture," she was prompted to think about how she might write and present papers that were more interesting to other audiences outside the cluster classroom.

*Bridges to Other Professional Activities*

Other faculty members also discovered that they could build bridges between cluster teaching and their professional experiences in and out of the university. One professor secured a book contract based on the work he did in the cluster. Another faculty member felt that his work on a national committee was enhanced by his being conversant with the work of scientists outside his own field, something he credited the cluster experience with providing. Yet another professor chose to teach in the cluster in order to prepare for writing a book that extends beyond his discipline, and he reported that the exposure to some of his cluster colleagues' work had indeed helped ready him for that project. Finally, faculty members from three different clusters talked about the possibility of writing textbooks covering the cluster course content. As one professor commented:

> *[W]e struggled so hard to find the appropriate text, and we ended up having three texts – a biology [text] which is less than perfect and then two other books in the course. We were thinking that since gerontology seems to be a growth industry, and there's more and more on this on the undergraduate level at many schools, we were thinking of writing a multidisciplinary, cluster-type textbook. This is a long-term project, but that came out of our experience and I think … having taught it, once we teach it three times we will have an appreciation of … what issues to address and how to plan such a book. So it's a long-term project, but that never would've happened if we hadn't taught the cluster course.*

### *Workload*

University faculty juggle myriad responsibilities, so workload issues as they relate to the cluster program are of particular concern. Indeed, all but a small number of those interviewed said that planning for, preparing for, and delivering their cluster material was significantly time consuming – often more time consuming than other courses they had taught. As one faculty member put it, "this is the most demanding class I've ever taught here at UCLA." Another lamented that "it wiped [him] out for a while." Faculty members needed to make connections between their own work and less familiar disciplines and areas of inquiry, often requiring them to learn new material. For many, adapting to a collaborative, team teaching environment also created additional work. Most of these comments related to either the first year of a particular cluster or the first year of a faculty

member's involvement with the cluster, however, and overall it appears that cluster participation does not create insurmountable workload levels.

*In the Classroom*

In the first year of a cluster, the instructional staff typically needed to get up to speed on material that was previously unfamiliar to them and they were "all going down this road that we've never gone down before." Many explained that each lecture took longer than usual to write because they "had to first learn the subject" and as a result they were "playing student as well as professor." This required a good deal of reading, and one professor joked, "the students complained about too much reading and me too, I'm complaining about too much reading."

Even when the material was familiar, it required new interpretations to work within an interdisciplinary course: "I did work with some readings that I used and so I didn't have to…reread them, but I did teach them differently so I had to write [my lectures] differently." Another faculty member agreed, saying this "task of trying to weave ideas together and keep that cohesion on board for the students makes this a very challenging pedagogical endeavor." This requires attention not only while preparing, but during class time as well:

> *This is the hardest teaching I've ever done in my life. This is not easy. And on the one hand it may look easier because my actual time in the front of the classroom teaching the course is less than it would be in a normal quarter. But I'm there every hour and I have to start picking up the ammunition for my next lecture while I'm listening to somebody else's lecture. And I don't think I appreciated how challenging that was.*

Even though individual faculty members were not solely responsible for every lecture, as they might be in other courses, most sat in on all of their colleagues' lectures and stayed fully engaged so they could make connections across subject matter for their students. As one individual explained, "you're working with other people to create one story and you're trying to figure out how everybody fits into that." This process requires full engagement throughout the course.

As is addressed in other subsections, many faculty members were drawn to the cluster for this very opportunity to make connections between their own and their colleagues' work. Not surprisingly, then, many of these faculty members also acknowledged the enjoyment derived from exploring new areas, citing the experience of gaining "a greater appreciation of the… tool kit of skills that my colleagues have across the disciplines." As another professor noted, "it is a lot of work, but I think it's very productive work."

In addition to the tasks of tackling new material and integrating subject matter across disciplines, some faculty members devoted a good deal of time to making their research accessible to students who typically had not had any previous exposure to it. Almost a fourth of the faculty members who said cluster courses took more time than other courses mentioned the needs of this particular student population as contributing to their workload. For example:

> *It's difficult to look at a scientific problem that I know so well and then try and see it from somebody else's point of view, remove the jargon, remove any preconceived notions or ideas from other courses you've had. So it really required me to write a lecture and then rewrite the lecture and then rewrite it yet again and again and again until I felt like, okay, now I've got something that a freshman student without any science background can actually come and listen to this and come away with the main points that I want them to get. … I'd say it's the hardest thing I've ever done.*

Finally, several faculty members incorporated technology into their teaching in new ways, and this added to the amount of time necessary to prepare for class. One professor recounted, "We put

together some really good PowerPoint presentations and slide shows and stuff like that. That takes a lot of work." Another referred to a "steep learning curve" in using technology "effectively" and "smoothly." As described in an earlier subsection, some faculty members also put additional pressure on themselves to improve their teaching because they were being observed by colleagues and this in turn contributed to an increased workload.

*Outside the Classroom*

The collaborative nature of the cluster program required a greater degree of coordination than a typical course, particularly in the months preceding the start of the academic year. As one professor explained, although the process is "stimulating" and "interesting," "it's always harder to integrate your own work or thinking with other people's." This was especially time consuming for new clusters:

> *You have four different faculty members from four different disciplines and you have the [teaching fellows'] feedback. And I think our cluster as it ultimately evolves will be better for the process of getting everyone involved and working through it that way, but it made it much more time consuming. Rather than having a sort of very small council … and autocratically kind of putting it together, it was much more kind of dialogical. So that was… very difficult, because it was eating a lot of time and there wasn't much payoff.*

Another echoed these sentiments, citing the "endless shifting sands of the administrative side of things" and describing the typical "back and forth" involved in planning:

> *This person needs to do that so I need to get the approval from these four other people that I am going to move his lecture over here and the TA this and…' (And) 15 emails a day or so that needed something done about them related to the course and that just kind of builds up and takes up time so, I did feel it just took up a lot of attention. It took up whatever that capacity is for the number of … chainsaws up in the air at any time.*

As discussed elsewhere, each of the cluster teams met on a regular basis (typically weekly) to handle these multiple tasks, and many of the faculty members connected these meetings to the heavier workload involved in cluster teaching. In most cases, the meetings were described positively as "democratic," "efficient" and "necessary," but "it still was quite a bit of time."

*Consequences and Cost/Benefit Analyses*

About a quarter of the faculty members who said they spent more time on the cluster course than they would have on other courses also said their professional responsibilities suffered as a result of their involvement. As one professor put it:

> *I didn't do very much research this year. Didn't do very much at all. It was lucky I had a productive summer last year and now I hope that this summer I'll get some more stuff done. But you know it had a serious impact on my research. For example I had a manuscript that was returned to me for revisions on say, I think it was January 1 or something or 8th or something like that. My first lecture was the following week and I looked at it and went "Oh god, I'm not going to get to this until the end of the quarter. … If I hadn't been doing the cluster that manuscript would be back now. So it has slowed me down significantly in terms of publishing.*

A few faculty members said that they had to stop working with the cluster program - if only temporarily - in order to make up for lost time. For example, one faculty member explained that "while I would love to keep teaching [in the cluster], I'm not going to do it after next year. I just can't afford it... [I need] a break to pick up those responsibilities." These professors pointed out that

"nobody [else is] keeping track of when somebody's workload has exploded," and they are solely responsible for "keeping tabs on it." These workload issues have the potential to be especially troubling to assistant professors, and this is one important reason the cluster program has primarily recruited faculty members who have already earned tenure.

For many, the relatively heavy workload was acceptable in the first year of the cluster because of the common assumption that workload issues would lessen with time. Roughly a third of the faculty members who participated in the interviews noted that while cluster courses required a good deal of advance organization and preparation, the time and energy required would likely decrease significantly as the course and materials became more familiar to them. They believed that with time, they would be "much smarter" in their decisions and would develop "a clear sense of how to make this experience more manageable." These assumptions are quite reasonable, given that most of the workload issues stemmed from the need to develop a collaborative and integrated curriculum for students. One faculty member who taught with his cluster for three consecutive years supported this notion as he reflected back on the workload levels he experienced:

> *For the second year I went and I had all the notes you know and I was able to just run through those. But I'd also assimilated the subject a little bit and I was able to … incorporate yet new things and stuff, and so … by the second year I was pretty comfortable. By the third year I was quite comfortable. So it doesn't take as long as it did.*

*Workload Comparability*

As noted earlier, faculty life is busy, with many professors reporting work weeks of well over forty hours. At a research university like UCLA, it is not uncommon to hear that faculty members who are committed to teaching must sacrifice valuable research time to accomplish their goals. The faculty members involved with the cluster program are no different, and some of those who participated in this research discussed these commonalities. These professors explained that they either did not perceive the cluster workload to be different from other courses, or explicitly said they felt the level of work required was in keeping with the compensation they received for teaching the course. Most of these individuals indicated that they are accustomed to being busy, so an additional labor-intensive activity did not have a significant effect on their work lives:

> *It certainly affects me in terms of my total time management but it's not a new tradeoff for me. I mean my whole career I've…given a heavy weight to teaching activities relative to my other activities and this is just the way I'm doing that now.*

Several professors said the workload might have been heavier, had it not been for the amount of "heavy duty work" on the part of the Graduate Student Instructors (GSIs). One professor explained: "The course would be very hard to float without really good teaching fellows and the ones we had were superb. Just superb." Another explained, "We used [GSIs] intensively to help develop some of those materials. The quality of the class was very, very reliant on their activities. I think they shouldered an enormous burden that first year."

In sum, it is not surprising that many faculty members cited a heavier workload than would be expected for a typical course. The clusters required them to think about and describe their research in new ways and to form connections with colleagues and graduate students. In general, however, faculty members saw the heavier workload as acceptable and, in many cases, temporary. On the whole, the trade-off is seen as acceptable:

> *It's a trade off and I'm very happy to negotiate that trade off. You know I profited immensely from this teaching experience and the fact that it has cost me a lot more effort than I*

*anticipated is, as far as I'm concerned, fine and good. I learned so much more and it's not that I thought it was going to be easy, I just didn't anticipate in fact how much harder it was going to be than I could have imagined.*

***Community***

Because creating a learning community was one of the explicit goals set for all cluster program participants, cluster faculty members were asked about the extent to which they felt this was achieved. The faculty's views about their connection with their faculty colleagues are described in earlier parts of this section. This subsection focuses on their views regarding their connection with the cluster students and GSIs.

*Connection with Students*

Aware of the perceived "disconnect" between faculty members at large research universities and their students, especially undergraduates, the cluster program planners and faculty have worked to cultivate a sense of community among faculty and students. As discussed above, several faculty members suggested that the quarter system limits the amount of interaction they usually have with students, and they were drawn to the program because it provided an opportunity for them to interact with students over the course of a year. As one faculty member noted:

*In the quarter system, it's possible to connect with students, but there's very little opportunity to see them again . . . So, one of the attractive features of the cluster is that you actually get to have sustained contact with them. You see them over the course of the year. And given that this is their freshman year, there's something very powerful about this.*

These increased interactions were fostered in a number of different ways. Some faculty members used informal methods to help develop community. For example, several said they stayed after each lecture to answer questions and invite any of those with questions to lunch in one of the campus dinning halls. More often, faculty members engaged in more formalized community building. Specifically, the faculty organized class socials, dinners, field trips, film screenings, and lecture series. Faculty members seemed drawn to these more formal activities, as they created opportunities for engagement while also complementing the course curriculum:

*In addition to the lectures, we have been running a film series … and then we've also provided dinner an hour before the film. So, that's been another way that we have been able to make contact with the students, get feedback, and provide kind of a collegial environment for the class.*

Some faculty members described what they felt were meaningful relationships with their students. A few, for example, had been invited by former students to provide keynote addresses to student clubs and associations. Others developed mentoring relationships:

*I'd say probably eight to ten students have kept in contact with me. About five of them took my course in sociology the first quarter of their sophomore year … and then a few others have taken independent studies or reading courses with me. [O]thers … just come in and … let me know what's going on with them. … But there was sustained contact, and I liked that. I think it's nice to be able to follow a cohort through their college career.*

While some faculty members were able to develop meaningful relationships, a significant majority said they felt less connected to the students than they had expected. On reflection, many attributed this to the increased number of instructors in the classroom which limited their one-on-one involvement with students: students in the clusters hear lectures from and ask questions of

anywhere from three to five different faculty members. Moreover, because GSIs lead the discussion sections during both the fall and winter quarters, faculty understood that students were more familiar with and in closer proximity to the GSIs than to the faculty. One instructor pointed out:

> *It was much more efficient for [students] to address their question to their [teaching fellow], who was going to be the person whom they know and who reviews and grades their material.*

Some faculty felt that the students viewed their interactions with the GSIs as more productive because they thought the GSIs had a general or broad view of the material, whereas the faculty members were thought to have a sense of only one aspect of the class.

*Connection with GSIs*

Cluster instructors commented regularly on the importance of the GSIs in making the clusters work and their appreciation of the hard work done by GSIs. Virtually all the faculty described them in such glowing terms as "stellar," "extremely dedicated and very conscientious," "absolutely great," and "very talented." Only one or two instructors described a very small number of GSIs in negative terms, one referring to a pair of GSIs one year as being "somewhat truculent." The overwhelming praise of GSIs was frequently accompanied by comments recognizing the challenges and burdens the GSIs bore. The faculty tended to appreciate that the GSIs were "absolutely a lot closer to the ground," interacting more directly and regularly with the students, helping them understand the whole range of course material and build the skills required to perform in the course and at UCLA.

Many cluster faculty members reported that they considered their GSIs to be an integral and, in important ways, equal part of the team. One coordinator described their work together as "a constant eight-person team effort" which he believed was "always" characterized by "a good feeling." Some faculty teams invited GSIs to social events to help further this good feeling and collegiality. Many solicited feedback on the course from the GSIs, partly because of their own uncertainty about the material and also because of their awareness that the GSIs had close contact with the students. One professor commented:

> *I think the [GSIs'] interaction with the faculty … was more interesting [than in a standard course], since we were feeling our way through the course, [so] there was much more equality [in the] relationship and it was much more collegial than … [in] some … 'Introduction to X' course [that] a professor had taught 20 times … [and] wasn't terribly interested in input from the TAs.*

Another coordinator noticed that there was a sense of community not only among faculty and GSIs, but also among the GSIs themselves, describing them as "a great group of teaching fellows who cooperated with each other beautifully and supported each other and were helpful and interested." The cooperation and engagement of the GSIs with each other and with the faculty can produce, as one instructor put it, "a wonderful team." In this case, the instructor recognized that the team consisted of "not just us three faculty, [but] the three TFs [who] really work phenomenally well together."

### *Satisfaction*

Virtually all cluster faculty members recognized and reflected on the various rewards of cluster teaching, as our account throughout this section attests. When one coordinator was asked whether he would do it again, he pointed to many of the rewards of cluster participation:

> *[I]t's been a really rewarding experience in a lot of different ways. Both in terms of impacting freshman students, which, I think, is really important [and] working with colleagues whom I really respect and like. Working with graduate students outside my department … has been really rewarding. And in terms of working with people, just organizing people and working with their emotions and needs…. All that working with other people [that we] academics don't like to do an awful lot. And intellectually it's been very rewarding, as well. And exciting. So, yeah, I would do it again.*

While not all faculty participants, perhaps, would celebrate all of these elements of the cluster experience, the majority felt the overall experience was positive. In the very rare cases where this was not the case, the faculty members attributed the problems to the cluster's not achieving what it set out to achieve, rather than to a failure of the model itself. One instructor, who conceded that he thought his particular cluster was "a failure [both in terms of] planning … [and] in terms of … pedagogical goals … really never mesh[ing]," attributed this in part to a lack of fit between his material and the rest of the course and to what he perceived as a lack of effort on the part of the other instructors to bridge the gaps between the different aspects of the course. Another instructor with similar complaints regarding curricular and interpersonal disagreements and disparities described his experience as "an unfortunate situation," while pointing out that "it [didn't] need to be that way." Both pointed to the importance of a "cohesive" team and better efforts at curricular integration to avoid these problems.

### *The Capstone Seminar Experience*

Almost half the faculty who lectured in the fall and winter portions of the cluster also taught seminars in the spring.[16] Additionally, a small number of ladder and non-ladder faculty who had not lectured in fall or winter offered seminars in some of the clusters. These faculty members taken together led about 40% of the seminars offered. The number of faculty teaching seminars was not greater in part due to the pressures from departments to have their faculty staff departmental offerings, as discussed above. Another reason, was that clusters attract excellent senior GSIs largely by offering them the opportunity to develop and teach their own seminars in the spring. This weighed against filling those slots with faculty members. Faculty members who did teach seminars were generally pleased with the experience, citing the opportunity to offer a challenging academic experience that is a capstone to the cluster course and to interact more closely with the students. A handful expressed some disappointment and reservations about the seminar.

The small number of faculty members who expressed dissatisfaction with the seminar experience did so to varying, but not overwhelming, degrees. One was disappointed that the students were "more withdrawn" and "less ready for discussion" than he had anticipated. He speculated that they were perhaps "exhausted" by the end of their first year and that the seminar topic he had chosen did not draw sufficiently on the material from the previous quarters to allow the students to

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[16] Of those faculty members who taught seminars, not all of them taught a seminar every year in which they lectured.

"build off that foundation." Two other faculty members who struggled with their seminars felt that this was due to the fact that they had not been members of the teaching team in the lecture portion of the course. Uncertainty about what the students knew and what they could be expected to understand affected their ability to engage the students successfully. One of these two seminar-only instructors said she didn't think bringing in a faculty member solely to teach a seminar was "the best model." The other—who taught only a seminar in the first year and then joined the teaching team the second year—reported that it was "completely different" the second time when he "knew exactly what materials they received and what was emphasized in the course and what I could assume they knew." Finally, another faculty member was saddened to see that at least in her seminar, the students seemed to be "there … for the grade." Despite this perception, she nevertheless felt that the students produced creative and sophisticated research projects at the end of the seminar.

The vast majority of the cluster faculty members who taught seminars reported that they found the experience rewarding on a number of dimensions. Most appreciated the opportunity to witness the intellectual maturation of the students that occurred over the course of the year and that manifested itself in the improved writing, critical reflection, and dialogue that took place in the seminar. As one faculty member reflected:

> *I think I have seen them develop an appreciation for science. [I also see] a certain maturity … I missed seeing that first time because I didn't do a seminar, and that's where you really see it. … We end with a seminar [in which] they're talking confidently, truly about things that would have been a total shrug at the beginning of the year, and that's when you know that you've reached them.*

Another professor noted the "intellectual sophistication" that the seminar students possessed, largely due to their having had the preceding two quarters' of lecture to draw on, and he emphasized the value of this experience as an "important culmination and affirmation of their work throughout the year." Another professor echoed this perspective:

> *I think the opportunity to work [all] year long with one set of students is amazing. … I heard the criticism that a freshman seminar is not really feasible because you have nothing to build on. We had more to build on than a lot of my graduate seminars. I had students that had gone through two quarters of introductory material. They were prepared for a really high level seminar.*

In general, the faculty members tended to agree that "the whole year makes the seminars possible."

A few faculty seminar leaders emphasized the value for students of getting to know a faculty member in an intimate classroom setting. One stated that he considered this goal particularly important, saying that the seminar allowed students to "feel like they could have a class with a faculty member—a small … intellectual exchange" that "gives them a sense … that they're not just … lost in the system." Thus, while the intellectually challenging and intimate exchange with a GSI provided a satisfying culmination to the cluster experience for students, some faculty members argued that there was an added benefit to freshmen of having this experience with a member of the faculty.

## SECTION SIX
## MAPPING THE CLUSTER EXPERIENCE: THREE CASE STUDIES

Attempting to chronicle the freshman cluster experience at UCLA is somewhat akin to a cartographer trying to map the contours of a *terra incognita* with a faulty compass. Not only are freshman clusters unlike any other general education offerings in the United States, but capturing the nuances of the teaching and learning experience that goes on in these innovative courses is not easily achieved with the standard evaluation instruments at our disposal. To a large degree, this is because instructional assessment at UCLA normally focuses on gathering quantitative data about student perceptions of individual instructor performance in department-based, quarter-long courses. Such an evaluative approach is not well suited to clusters, which are yearlong courses with an interdisciplinary focus and an interdepartmental cohort of faculty and graduate student instructors. Further complicating our effort to assess the educational experience in clusters is the protean nature of these courses, i.e., the fact that each cluster course is a largely autonomous intellectual enterprise with its own distinctive student population, teaching methods, assignments, and living-learning experiences.

Evaluating the educational experience that goes on in courses with such unique formats and variable natures requires an array of assessment strategies that are both quantitative and qualitative in nature. The preceding sections of this report demonstrated how just such a mix of student surveys, focus groups, and interviews have been used over the last five years to achieve an understanding of why freshmen, graduate students, and faculty participate in clusters and what this experience has meant to them. The following section uses a series of in-depth narrative essays, or "case studies," to capture and convey some sense of the actual dynamics that are involved in the development, organization, and implementation of individual cluster courses. These studies also try to communicate how truly varied cluster courses are in their subject matter, course aims, and pedagogical practice by focusing on a humanities and social sciences cluster (*Interracial Dynamics in American Culture, Society, and Literature*), a natural sciences cluster (*Evolution of the Cosmos and Life*), and a so-called "bridge" cluster (*The Global Environment: A Multidisciplinary Perspective*).

The narrators of the following case studies are intimately familiar with their subject matter. In addition to their longstanding working relationships with the clusters being described in this section, these individuals have discussed their observations and findings with their cluster colleagues, and also made use, where possible, of the extensive assessment data that has been collected on their courses over the last four years. They bring to their essays three very distinct voices that reflect the unique nature of the cluster communities in which they have worked.

# The Case of the Global Environment

M. Gregory Kendrick, the author of this case study, is the Instructional Coordinator of the Freshman Cluster Program at UCLA. He has worked closely with the Coordinator of the *Global Environment* cluster, Keith Stolzenbach, from 1998 to the present. This case study draws heavily on Professor Stolzenbach's experiences over the last six years as a faculty member and coordinator of the *Global Environment*. All individual quotes cited in this case study are used with permission.

## From IoE to GE: A Brief History of the Global Environment Cluster

*What drives us is that the environment is falling apart out there and we want to help fix it; and we know…that our own disciplines can't do this by themselves.*[17]

– Richard Vance (Organismic Biology, Ecology, and Evolution)

The Global Environment cluster is the brainchild of a group of UCLA faculty and administrators who are deeply concerned about the health of the environment, and, like Richard Vance, convinced that no one discipline can adequately address the daunting environmental problems confronting us in the new millennium. In the 1990s, these individuals addressed their environmental concerns by pressing for the creation of an organization that would coordinate and consolidate environment-centered activities across the campus. Their efforts were rewarded in 1997 when the Academic Senate established an independent, self-supporting, non-degree-granting program known as the Institute of the Environment (IoE). The Senate resolution establishing the new institute also charged it with fostering, augmenting, and coordinating interdisciplinary environmental research and teaching at UCLA, through a self-selected faculty drawn from a wide spectrum of campus disciplines and departments.

From its inception, one of the principal objectives of the IoE was to develop an academic program that would enhance the educational experience of undergraduate students by introducing them to virtually every aspect of the environment. To achieve this end, faculty affiliated with the Institute wanted to create multidisciplinary courses that would demonstrate how diverse disciplines address complex contemporary environmental problems. In these courses, students would work with faculty from different departments and schools, participate in IoE sponsored research programs such as the UCLA Marine Science Center, and conduct investigations into the socio-environmental issues of Los Angeles and Southern California.

The decision by the College of Letters and Science to launch an experimental general education cluster program provided IoE faculty with the perfect opportunity to turn these pedagogical reveries into reality. Indeed, the idea of offering incoming freshmen the opportunity to take yearlong, collaboratively taught, interdisciplinary courses that were focused on topics of timely importance seemed perfectly suited to the instructional ambitions of the new Institute. Consequently, in 1997, a committee of IoE faculty comprised of Professors Nicholas Entrikin (Geography), Ted Porter (History), Melissa Savage (Geography), Keith Stolzenbach (Civil and Environmental Engineering), Richard Turco (Atmosphere Science), and Richard Vance (Organismic Biology, Ecology, and Evolution), among others, entered into a joint venture with the General Education Office to create a pilot cluster course entitled *The Global Environment: A Multidisciplinary Perspective*.

The course that emerged from these deliberations was designed to introduce freshmen to the ways in which different disciplines address the environmental degradation being visited on our planet by human activities. It featured a multidisciplinary teaching team of six ladder faculty, three senior graduate students, and one post-doctoral scholar. In keeping with the instructional aims of both the IoE and the cluster initiative, the syllabus of the new course also called for a considerable amount

[17] Richard Vance, interview by Office of Undergraduate Evaluation and Research, page 7. July 11, 2001.

of reading, writing, discussion, lab work, and involvement in a number of field trips to local environmental agencies and research sites.

In the spring of 1997, the Undergraduate Council of the Academic Senate approved this *Global Environment* cluster. The course was offered for the first time during the 1997-1998 academic year and 121 students were enrolled. Five years later, *Global Environment* remains one of the staple courses of the cluster program and has provided over 850 students with a multidisciplinary perspective on the environmental issues of the day. The following table summarizes of the enrollment and instructional teams for the *Global Environment* over the last six years.

**Table 6.1 Profile of The Global Environment: A Multidisciplinary Perspective: 1997-03**

| | 97-98 | 98-99 | 99-00 | 00-01 | 01-02 | 02-03 | ***Totals*** |
|---|---|---|---|---|---|---|---|
| ***The Global Environment: A Multidisciplinary Perspective*** | | | | | | | |
| Number enrolled as of Fall Quarter | 121 | 105 | 130 | 166 | 168 | 164 | **854** |
| Number of Faculty | 6 | 5 | 5 | 6 | 6 | 7 | **(12)*** |
| Number of Graduate Student Instructors | 4 | 3 | 4 | 4 | 4 | 4 | **23** |

* (#) Represents an adjustment to the total accounting for faculty who taught in more than one academic year.

## Theory and Practice: Developing and Implementing a Freshman Cluster on the Environment

### *Dramatis Personae: Creating an Instructional Cohort for the Global Environment*

*I would say that forming a teaching team each year is one of my most challenging tasks as a coordinator.*[18] –Keith Stolzenbach (Civil and Environmental Engineering)

All cluster coordinators confront a similar set of challenges when trying to put together an instructional cohort for their courses. First among these is the need to recruit a team of three to four faculty members, as well as an equal, or slightly larger, number of senior graduate student instructors (GSIs). Once this group is assembled, coordinators then confront the rather daunting task of having to integrate the different disciplinary discourses and pedagogical philosophies of these individuals into the stuff of a coordinated and coherent cluster course. Recruiting a team is made difficult by the fact that cluster participation requires a considerable commitment of time, which takes faculty and graduate students away from their research, publishing projects, and departmental teaching responsibilities. Creating an integrated instructional team tends to be complicated by not only the personal and disciplinary differences of its individual members, but by what Nick Entrikin (Geography) refers to as the faculty propensity "to prepare courses alone….without really talking very much about how they're doing it."[19]

On the recruitment front, the *Global Environment* has been blessed by its association with the Institute of the Environment. In addition to the five ladder faculty who hold positions in the Institute, over fifty faculty members are loosely affiliated with IoE. All of these individuals share an interest in interdisciplinary approaches to research and teaching on the environment, and they represent a significant cross section of disciplines, including the sciences, public policy, engineering, law, business, and public health. Over the last six years, the faculty complement of

[18] Stolzenbach, Keith. "Coordinator's Report: GE Cluster/Environment M1/*The Global Environment*." Photocopy. September 2002. Page 1.

[19] Nick Entrikin, interview by Office of Undergraduate Evaluation and Research, page 2. August 1, 2001.

the *Global Environment* instructional team has been comprised of these IoE members, and their summer salaries and course releases for teaching in the cluster have been covered by the Institute.

Recruiting well-qualified senior graduate students for the cluster's discussion sections, while challenging, has also not posed a problem. Every spring the *Global Environment* faculty team sends out an announcement that the cluster is accepting applications for a number of GSI positions in the coming year. This announcement is sent to both affiliated IoE faculty and graduate department offices throughout the campus. Students interested in the positions are asked to submit a resume by the beginning of April, and this usually yields anywhere from eight to ten applications. The cluster's faculty team interviews these applicants and makes offers on the basis of their general teaching experience (particularly in the area of writing) and their familiarity with environmental topics. The graduate students who have accepted these offers over the last six years are normally engaged in environment-centered research and they are from such IoE affiliated departments as Civil and Environmental Engineering, Economics, Geography, History, Oganismic Biology, Ecology, and Evolution (OBEE), Public Health, and Urban Planning.

While recruiting an instructional cohort has not posed much of a problem for the *Global Environment* cluster, integrating the different instructional styles and disciplinary perspectives of the individuals that make up these teams has often been challenging. Nothing captures this better than the following remarks of OBEE's Richard Vance:

> *We are a faculty with a range of different perspectives and we cannot speak as one person….I mean Rich Turco (Atmospheric Sciences) is more quantitative…than I am, and Keith Stolzenbach is an engineer. He [Keith Stolzenbach], for example, has a very practical perspective about how many million gallons of water you need per day to achieve some goal, and Turco, Nick Entrikin (Geography), and myself do not have the same perspective. Consequently, there is a little bit of a disconnect when you go from one person to another.*[20]

Two factors have ameliorated this "disconnect" over the years. The first of these is the shared commitment of the *Global Environment's* faculty to interdisciplinary research and teaching. The second is the extraordinary good fortune of the cluster in having Keith Stolzenbach as its coordinator for the last five years. In this role, Keith has been able to provide the *Global Environment* cluster with both stable leadership and an institutional memory of the course's various permutations since 1997. Drawing on his experience, the cluster's faculty and GSIs have approached the challenge of creating a collaborative interdisciplinary teaching team in the following ways:

- In light of the fact that a large faculty cohort makes it difficult to arrange team meetings, have in-depth discussions, and plan a coherent set of linked lectures, the cluster's faculty complement is limited to no more than four individuals. In keeping with the interdisciplinary nature of the cluster, one of these four faculty is a social scientist.
- These faculty members are recruited as early as possible to ensure that they have an opportunity to become familiar with each other's disciplinary backgrounds, research interests, and teaching philosophies.
- All decisions pertaining to the subject matter of the course and how it is to be integrated are taken collectively by the faculty team. During the course of the year, faculty collaborate on case studies, *vignettes*, and debates as a way of demonstrating to students how their disciplines

[20] Richard Vance, interview by Office of Undergraduate Evaluation and Research, page 6. July 11, 2001.

work together to address common environmental problems (for more on this see the next section *What's Worth Knowing?*).

- GSIs are recruited in the winter quarter of each academic year and the faculty team interviews and hires them collectively.
- Every effort is made to integrate fully the cluster's GSIs following their recruitment. As such, they are treated as "colleagues," as opposed to "apprentices," and their input is sought on everything from course subject material, to assignments, tests, and grading. GSIs are also afforded the opportunity to participate in course lectures and given wide latitude in the design and teaching of their discussion sections and labs. To ease GSI workload, faculty grade a portion of the course's tests and major papers.
- Faculty and GSIs are expected to attend all cluster planning meetings, lectures, and social events.

Interviews with faculty and graduate students who have taught in the *Global Environment* indicate that these arrangements have been remarkably successful in creating cohesive, truly collaborative instructional cohorts for the cluster. Indeed, the members of these teaching teams tend to agree that their work together has made them more reflective about their teaching, more sensitive to other perspectives on the environment, and more attuned to what is entailed in interdisciplinary research and instruction. One can get a sense of this from the following remarks of Richard Turco (Atmospheric Sciences):

> *I've learned a lot from participating in this cluster. You know each of us gets pretty specialized, and, just because of a lack of time, I can't go read a book on ecology. I wouldn't normally do that. There's no incentive for me to do that because I've got lots of other things to do. But sitting in on the cluster lectures, listening to an ecologist go through all of the arguments, nomenclature, and methodology of his field, I'm learning what they do. Cluster teaching is a very valuable exercise for people who want to be interdisciplinary and understand each other's fields.*[21]

Cluster GSIs also indicate that the organization of the *Global Environment's* teaching team could serve as a model for faculty/graduate student instructor relations campuswide.

Recruiting and integrating academic personnel, however, is quite different from figuring out what first-year students need to know in order to participate in today's worldwide environmental discourse. In the section that follows, we address the challenges that *Global Environment* faculty and GSIs have encountered in trying to determine what they should teach and how this often disparate material should be organized and presented to their students.

### *What's Worth Knowing? Identifying and Integrating the Subject Matter of a Global Environment Cluster*

*The "environment" is a good label, but it's this tremendous range of topics. From the very beginning we've had difficulty deciding what to teach and how broad and deep this teaching should be.*[22]–Keith Stolzenbach

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[21] Richard Turco, interview by Office of Undergraduate Evaluation and Research, page 13. June 19, 2001.

[22] Keith Stolzenbach, interview by Office of Undergraduate Evaluation and Research, page 16. June 19, 2001.

When asked what they want their students to learn, *Global Environment* faculty usually single out three things. First of all, they want their students to achieve a deeper understanding of the complexity of the earth's environment. This includes learning something about the properties and interactions of the planet's air, water, and soil, as well as the impact of human activities on these natural systems. Secondly, they want their students to develop a broad "environmental literacy," or an ability to assess critically reports, policy statements, and proposed legislation on such issues as global warming, drilling oil in the Arctic National Wildlife Refuge, and protecting endangered species. Finally, they hope to inculcate in their students a way of looking at the world that is sensitive to the connections and interconnections that exist among organic and inorganic systems.

While these learning objectives command a consensus among the faculty who have taught in the *Global Environment* cluster, there is considerably less certainty with regard to how they are to be achieved. Perhaps nothing illustrates this better than the difficulty faculty encounter when trying to determine the subject matter that a first year, non-science student needs to know in order to achieve a "deeper," or more sophisticated, understanding of how the environment works. If they focus on material that provides students with an intensive coverage of major environmental factors like water, air, soil, and population, then other important ecological concerns, such as plants, marine biology, and desert life, are likely to receive short shrift. On the other hand, if faculty attempt to cover all of these topics, the result is a very broad survey course that gives students only the most cursory of introductions to the many facets of the environment.

Further complicating this question of what to teach in the *Global Environment* is the course's status as a so-called "bridge" cluster, i.e. as a course that is designed to demonstrate to students how north and south campus disciplines can work together to address a topic of common concern. As envisioned by its founders, *Global Environment* is supposed to achieve this end by providing its students with both a solid grounding in the environmental sciences, and an introduction to the ways in which human political arrangements, economic developments, and cultural attitudes shape the planet's ecosystems. Consequently, the subject matter of the course is meant to include not only material from the physical and life sciences, but from the social sciences as well. As with the natural science component of the course, however, the cluster's instructional teams struggle with the question of what this social science material should be, and at what depth it should be taught. As Keith Stolzenbach notes "this cluster is both blessed and cursed with abundant material spanning the huge range of topics in the general area of environmental studies. Deciding what *not* to present is the real problem."[23] [Emphasis added]

While identifying the subject matter of the *Global Environment* is problematic, finding a way to integrate such disparate material into a coherent whole that is comprehensible to first year students is even more challenging. The cluster's first two instructional cohorts approached this issue in what might be called a multidisciplinary fashion. That is, each member of the teaching team was assigned a block of lectures and asked to introduce students to the environmental concerns and methodologies of their discipline. While this approach allowed faculty to focus on their areas of expertise, and also provided students with a fairly solid introduction to a number of different environmental and social sciences, it was neither collaborative nor interdisciplinary. Students did not get a sense of their faculty as being part of a teaching team, and the presentation of the material did little to foster an awareness of the ways in which human and natural environments are connected.

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[23] Stolzenbach, Keith. "Coordinator's Report: GE Cluster/Environment M1/*The Global Environment*." Photocopy. September 2002. Page 2.

In subsequent years, the *Global Environment's* instructional teams have considered a number of different approaches to the problem of integrating the cluster's diverse subject material. The most obvious of these is one that would involve structuring the course around a series of environmental case studies, e.g., Should we use DDT in the fight against malaria? How do we reduce global carbon emissions? Can we feed China? Such topics are timely; they are of concern to social and natural scientists; and they are broad enough to allow each member of a teaching team to demonstrate how their individual disciplines approach different kinds of environmental questions. The result would be a naturally integrated set of lectures that demonstrate the complexity of the environment, the value of interdisciplinary inquiry, and the need for an environmentally literate citizenry.

While the *Global Environment's* instructional teams seriously considered this case study approach, they never adopted it. In part, this is due to workload considerations. Though faculty work hard to adapt their material to the cluster format of the *Global Environment*, they nevertheless bring to the course a set of lectures with which they are familiar. A case study format would require them to substantially rethink and rewrite their lecture material, and this would take more time away from research and home department teaching. Another obstacle lies in the fact that many of the faculty involved in teaching the *Global Environment* have very strong ideas regarding what students need to know about their disciplines and how that material should be imparted. These individuals fear that a case study approach to the concerns of the cluster would make for a less rigorous and all too general introduction to the environmental sciences. As Keith Stolzenbach points out in his coordinator's report on the *Global Environment*, "this is sometimes a matter of disciplinary jargon getting in the way—we simply do not speak the same language at times. But there are deeper differences, mainly disciplinary, I believe, but occasionally personal."[24]

At present, the *Global Environment* faculty have adopted a method of integrating their course material that uses both discipline-centered blocks of lectures and case studies. During the academic year, faculty present a lecture series that is organized into four blocks (two in the fall and two in the winter). Each block of lectures reflects the expertise of the four faculty members who make up the instructional team. During the 2002-2003 academic year, for example, *Global Environment* faculty members from Engineering, Urban Planning, Organismic Biology, Ecology, and Evolution, and Atmospheric Sciences will present four blocks of lectures on water, population, ecology, and air.

Faculty present their lectures in an unbroken sequence, with time set aside at the end of their block for a case study that brings in the disciplinary perspectives of the other faculty members, as well as contributions from occasional guest lecturers. A faculty member addressing water, for example, will introduce students to the hydrologic cycle, the role of water in the production of food and the spread of disease, and how human activity affects the availability and quality of our groundwater. Then the entire instructional team (and any outside guests they wish to invite) will address a case study like water use in California, e.g., the role of population on the state's use of water, the effect of agribusiness on water quality, etc.

This method of integrating and coordinating the subject matter of the *Global Environment* cluster appears to have worked well for the course's instructional teams over the last three years. It accommodates the need of faculty members to present the basic concepts of their discipline, allows them to use previously prepared lectures, relates their lecture material to environmental topics of

[24] Stolzenbach, Keith. "Coordinator's Report: GE Cluster/Environment M1/*The Global Environment*." Photocopy. September 2002. Page 3.

timely importance, and involves students in a collaborative, interdisciplinary teaching and learning experience. Keith Stolzenbach anticipates that the cluster's teaching teams will continue to use this hybrid lecture format well into the foreseeable future.

While these lectures are a critical part of the *Global Environment's* instructional effort, they are only one of the many pedagogical tools that the cluster's teaching team makes use of in its effort to introduce freshmen to the environmental discourse. Faculty presentations on air, water, soil, and population can and do deepen student awareness of the environment's complexity, but helping students learn about the many ways in which these systems relate to one another requires a wide range of activity--discussion, supplementary reading, lab experiments, and field trips. In the next section, we turn our attention to this learning process.

***The Learning Process: Introducing Freshmen to the Environmental Discourse***

*We want the students to learn a kind of ecological thinking that requires this constant establishing of relations and interrelations among things. For example, when they are looking at research about particular kinds of social changes that go on in the nation. How does this affect population? How does this affect consumption? What relation does this have to climate? How does this impact the world water supply?*[25] – Nicholas Entrikin (Geography)

How do you teach students to think "ecologically?" What kinds of texts, classroom activities, assignments, and community-building experiences will make freshmen aware of the "constant establishing of relations and interrelations among things?" These are questions that the teaching teams of the *Global Environment* have grappled with since the course's inception. While the answers that these teams have come up with on this score are far from definitive, they do appear to have enjoyed some success in both introducing freshmen to a multidisciplinary perspective on the environment and improving certain skills essential to student success in a research university. In the following section, the pedagogical strategies that the cluster's instructional cohorts have adopted over the years are analyzed and appraised.

*In the Classroom*

Newsletters

Clusters have often been compared to operas in that they present their student audiences with an often convoluted plot line that is delivered in a foreign language by a diverse group of actors moving through a dizzying set of scene changes. As the previous section makes clear, this operatic analogy is an apt one for the *Global Environment.* Over the course of two quarters, a cast of roughly eight instructional performers present students with the highly complex story of the environment in four distinct "acts," each boasting its own disciplinary language.

Just as novice operagoers are often confused by the events being related to them on the stage, students in the *Global Environment* complain about being disoriented with regard to the sequence and significance of the lecture topics in the course. This is not terribly surprising when one considers the range of subjects being addressed in a given quarter, as well as the diverse cast of faculty, GSIs, and guest lecturers delivering this material. To rectify this problem, Keith Stolzenbach prepares and distributes a cluster program or newsletter before every lecture entitled *ENV MI Times*. This newsletter reproduces the relevant section of the lecture schedule from the syllabus and briefly explains how it fits into the overall course plan. The *Times* also serves as a vehicle for announcements, and its back side is used to provide both an outline for each lecture, as

[25]Nick Entrikin, interview by Office of Undergraduate Evaluation and Research, page 6. August 1, 2001.

well as a brief biography of any guest lecturer addressing the class. While some have dismissed this newsletter as unnecessary "coddling," Keith finds it an invaluable means of distributing course information and students find it helpful in keeping track of the cluster's progress.

"Vignettes" and Debates

It was noted in the previous section that the subject material of the cluster is delivered to students in four distinct blocks of lectures, each one reflecting the expertise of the four faculty members comprising the instructional team. While this arrangement allows the individual instructors to go into some depth about their different disciplines, it does not give the students any sense of the faculty as being part of a collaborative team that is trying to find an interdisciplinary approach to environmental study. Even the case study format at the end of each lecture block only allows members of the faculty team to appear as visitors, or "quasi-guests," in the course segments that belong to a specific instructor.

In an effort to demonstrate more fully to students how research faculty from different disciplines can "connect" with one another on environmental concerns, the *Global Environment* instructional team has launched a series of in-class group presentations over the last two years. The way this works is that during the fall and winter quarters four unannounced "special lectures," in which a second faculty member or GSI shares the stage with the regularly scheduled lecturer, are presented to the class.

These special lectures take one of two formats. The first of these involves a faculty member or GSI taking the stage at the end of a period and presenting a ten minute "vignette" on a topic related to the main lecture. These brief sketches are designed to demonstrate to the students different, albeit interconnected, perspectives on an environmental question or concern. The second format involves setting up a debate between the main lecturer and another faculty member on a given topic. An example of this latter approach is an exchange that occurred between Professors Stolzenbach and Turco on the question of whether or not we can feed China. In the course of this debate, students were introduced to the ways in which expanding population, industrialization, and water use are related to one another and can impact the ability of a country to feed itself.

The degree to which these special lectures are effective in helping students understand the interdisciplinary nature of environmental study is unknown. Keith Stolzenbach reports that students in the class appear to enjoy these interruptions in the normal routine of the class. The attendance at these events is also fairly high because roll is taken and students receive a grade point for each special lecture that they attend. However, Keith acknowledges that the instructional team has received very few comments about them in their course evaluations.

Guest Lecturers

To familiarize students with the wide range of environmental research and activity that is going on in the Southern California area, the *Global Environment* faculty invite about five guests to give lectures each quarter. Most of these are UCLA ladder faculty associated with the Institute of the Environment, though an effort is also made to bring in lecturers from agencies, non-profit organizations, and research groups focused on environmental issues. Occasionally, a non-faculty lecturer from within UCLA, usually someone known to be a good speaker with information on a special topic, is invited to present a guest lecture.

Keith Stolzenbach reports that the use of guest lecturers is something of a double-edged sword. On the one hand, they provide students with a perspective (sometimes a non-academic one) on the environment that is different from that of the faculty team. Occasionally, however, the lecturers

are not as good as the team anticipated. Furthermore, because guest lecturers have not participated in the class, their material does not always connect well with what is being covered in the course.

Discussion Sections/Labs

Discussion sections serve two functions in the *Global Environment* cluster. The first of these is to provide students with an opportunity to explore in greater depth many of the issues that are raised in the lectures. This often involves discussing with the cluster's GSIs a number of supplemental readings taken from professional journals. These articles are related to the weekly lecture topic, and are selected for the purpose of introducing students to the subject matter and conventions of scholarly literature on the environment.

The second use of the discussion sections is to serve as laboratories. The experiments conducted in these labs are usually computer-based exercises (done in the Powell Library) with some quantitative analytical component. Examples of these experiments include *Ecobeaker* (a computerized simulation of the ecosystem), *Waste Disposal* (compute how to meet water quality standards), *California Water Balance* (design a plan for water in 2020), *Population* (a simple analysis of population dynamics), *Global Carbon Cycle* (design a policy for carbon emission reduction), and *LA GIS* (Graphic Information Systems) *Lab* (see how GIS can help access geographic data). Each lab exercise is designed to be done in one two-hour session, usually with a short report due afterwards (which is not treated as a writing assignment).

*Assignments*

Textbook

When the *Global Environment* was first launched in 1997 the cluster's faculty made use of a main ecology textbook and some supplemental paperbacks. Over the last three years, they have opted to use Botkin and Keller's *Environmental Science* as the single textbook for the course. This book is moderately expensive and the cluster's different instructional cohorts have found it to be a reasonably good text that covers most of the material that they wish to address in the course. Faculty have also tailored their lectures so that they correspond to the layout of this textbook and this has helped further integrate the subject matter of the course.

Student evaluations indicate that the cluster's textbook serves as something of a lifeline. It provides them with a sense of the overall structure and direction of the course, and they can consult it when they are unsure of ideas and theories that are raised in the lectures. Finally, because the text addresses a wide range of environmental science it also helps to demonstrate and reinforce the notion of the environment as a complex interconnected system of natural and human relationships.

Writing

Every one of the *Global Environment's* instructional cohorts has been committed to improving the writing of the students enrolled in the cluster. Consequently, writing assignments are one of the principal tools employed by the teaching team to introduce students to the environmental discourse. Although each year's team re-evaluates past writing assignments, they have largely followed the same format, i.e., three short papers in the fall quarter and one long research paper in the winter.

The short assignments are normally tailored to be training exercises in the use of library and web-based environmental materials. For example, the first of these assignments will normally require students to look up and write a summary of an article or treatment on some environmental issue. This is then followed by a second assignment that asks students to discriminate between different sources of information on the environment, and a third that requires them to provide a critique and a synthesis of a number of conflicting positions on a common environmental concern. The winter quarter research paper allows students to select an environment-related topic and explore it in some

depth. These longer papers usually have multiple deadlines for their component parts, e.g. week four a bibliography is due; week five an outline/introduction; week seven a rough draft for peer review, etc. (See Attachement D for sample writing assignments).

With very few exceptions, *Global Environment* faculty and GSIs report a dramatic improvement in student writing over the course of the cluster. Indeed, a number of GSIs have noted in interviews that student writing tends to be fairly abysmal during the fall quarter, but that it markedly improves in the winter and is quite good by the end of their seminar experience. In their end-of-the-year self-evaluations, a considerable majority of Global Environment students report a marked improvement in their writing ability.

*Community-building Experiences*

Field Trips

Global Environment students are required to attend one field trip in both the fall and winter quarters. To accommodate their different schedules, five to six field trips are offered to students each quarter and they select the one they want. This year the teaching team will be taking students to visit the Los Angeles River, the Ballona wetlands, UCLA Stunt Ranch, the Tillman Water Reclamation Plant, and Santa Monica Bay (on UCLA's boat, the Sea World). Possible winter trips include the UCLA Energy Facility, a toxic tour of Los Angeles, an urban sprawl tour of Ventura County, and the Palm Springs windmills. It should be noted that even though these trips occur mostly on Saturday and Sunday mornings, they are quite popular with the cluster's students. Their popularity is also due to Keith Stolzenbach's tireless efforts to ensure that they go well logistically, are not too long, and avoid conflicts with major football and basketball games.

Social Events

One of the goals of the cluster program is to foster "academic socialization," i.e. to develop social and intellectual bonds between students and their teachers, and, above all, among students themselves. The instructional teams of the *Global Environment* try to achieve this aim by holding a modest number of social events throughout the academic year. In the fall and winter, this involves an informal gathering with *hors d'oeuvres* in one of the dormitory lounges from 4:30-6:30 on a weekday evening (not a Thursday or Friday) during week four, five, or six of the quarter. Attendance normally ranges from 40-50 students in the fall, and 20-30 in the winter. In the spring, the teaching team hosts a BBQ in the Tree Patio opposite Covel Commons from 5:30-7:30 on a weeknight. Attendance at this event has been as high as 60-70 students and as low as 40-50. Though the numbers of students who attend these events is a fraction of the cluster's total enrollment, those who do show up appear to appreciate the chance for contact with the course's faculty and GSIs.

*Examinations*

Midterm and final examinations are given during the fall and winter quarters. The midterm is an hour and a half and is held in the evening of the fifth or sixth week. The three-hour final is at the time appointed in the *Schedule of Classes.* These exams do not have any multiple-choice questions. Instead, they are a mix of questions that require students to write short, medium, and long answers. Students are assured that the exams will not require the gratuitous memorization of dates or names. Questions on the final are cumulative, although material from the latter part of the quarter receives more emphasis. Previous exams are made available to students in the library, and in the coming year will be accessible through the cluster's website.

The cluster's examinations are prepared collectively by the entire instructional team. Faculty and GSIs are asked by the coordinator to submit possible questions. These are then distributed to everyone before the meeting where the final questions are selected. A criterion that is often used in

deciding to accept a test question is that it has to relate to material that is covered in at least two places in the class, e.g. the lecture, discussion sections, textbook, readings, etc. Following the finalization of the exam, the GSIs hold a review session in the residential life area several days before the test is given.

Following the exams, individual examinations are disassembled into separate pages and each page is graded by the same GSI or faculty member (faculty always help in grading the long questions). Students are identified on each page by a confidential ID number unique to the exam. After the grading is completed, the exams are reassembled and given back to the students. An examination key is published on the cluster's website and students contesting their grade must see the appropriate GSI or faculty member who graded their answer.

Keith Stolzenbach reports that this examination process has worked well over the years. Students occasionally complain that there is too much to study and that the exams are difficult. However, they also indicate that they believe the tests are fair in that they cover material that's been discussed in the class.

*Grading*

Student grades are determined by a system of 300 points broken down as follows:

| | |
|---|---|
| Participation | 30 |
| Discussion Section | 20 |
| Field Trips | 5 |
| Special Lecture | 5 |
| Laboratory Work | 45 |
| Writing Assignments | 75 |
| Midterm | 60 |
| Final | 90 |
| Total | 300 |

The grade curve in the cluster is B-centered, and that is the grade the majority of students get. The cluster teaching team does not try to curve the grade profile, but they do pay attention to both the number of As and Cs given and to the absolute percentage of the grade cutoffs. Almost always the A/B cutoff is at 90% and the B/C cutoff is about 80%. The grade percentages for the course have ranged in recent years from 21-31% As, 49-62% Bs, and 6-23% Cs. Very few of the students in the *Global Environment* get Ds.

There tends to be some student grousing about grades in the *Global Environment*, particularly after the fall quarter. Student evaluations also indicate, however, that while most of the students find the grading in the course to be rigorous, they also consider it to be fair. Keith Stolzenbach reports that he has only had to deal with one or two real complaints about grading each year.

*Assessing the Learning Process in Global Environment*

Trying to assess the effectiveness of these different instructional strategies in achieving the learning objectives of the *Global Environment* teaching teams is a difficult task. Surveys asking student participants to comment on any effects that they think the cluster experience had on their intellectual skills were administered to *Global Environment* students over the last three years. A clear majority of students enrolled in the course indicated that they actively participated in more discussion, writing and rewriting of papers, collaborative work with other students, and interaction with faculty and GSIs than in their other courses. Majorities also reported that they found the *Global Environment* cluster an intellectually stimulating experience that made them think more

critically about environmental issues. Open-ended student comments regarding what students regarded as the best aspect of the *Global Environment* experience netted some of the following remarks:

> *The best aspect was the variety of information covered and the fact that I got to learn it from various professors.*
>
> *It was very interesting to learn the economic and political aspects of environmental issues. I did not expect these to play a role in the environment's problems.*
>
> *The multidisciplinary learning experience it provided, including political, social, cultural, environmental, geographical, and economic knowledge.*
>
> *Learning how to do good research in on-campus libraries and learning about the predicament we are faced with in conservation efforts.*
>
> *It was about topics that directly impact me. It taught me how to debate, and think critically as both a politician and a scientist would on the environment.*
>
> *I am much more aware of the environment and open to discussion on the ecological crisis. It has helped me think and analyze critically.*
>
> *It covered so much information that is very current—I feel like most of the knowledge I acquired in this class can be related to almost all the other classes I took this year. I feel like I learned a lot.*
>
> *This was the only class I've taken this year, which I actually think will make a difference in the future of our country and world.*

Faculty and GSIs report that they believe students leave the cluster with considerably more awareness of the environment—its complexity, interconnectedness, and political importance—than when they start the course. There is also general agreement among the members of the *Global Environment's* various instructional teams that student writing improves markedly over the course of the year. One other thing that faculty and GSIs agree on regarding the learning process in the *Global Environment* is that the fall and winter quarters lay the groundwork for engaging and intellectually stimulating spring seminars, and it is to that experience that we will now turn.

### *Putting It All to Work: The Global Environment Capstone Seminar Experience*

*The seminars are very mixed in our course…. Some students have a chance to get involved with ideas, others have the opportunity to learn research techniques, and a few seminars give their participants the option of doing fieldwork. In the end, I think the students felt that they had been exposed to something that made them feel much more like a college than a high school student.*[26]

– Nicholas Entrikin (Geography)

[26] Nick Entrikin, interview by Office of Undergraduate Evaluation and Research, page 8. August 1, 2001.

One of the principal aims of the cluster program is to help first-year students make the transition from high school to college by familiarizing them with the ways in which a research university actually works. Key to the achievement of this goal is the spring seminar where freshmen have the opportunity to really explore a cluster-related topic in some depth with a faculty member or senior GSI. Building on the knowledge and skills that they have acquired during the fall and winter quarters, cluster students study either one or all of the following in these small learning forums:

- A current research project of their instructor.
- A specific topic of abiding and/or current scholarly interest in one or more disciplines (e.g., "global warming" in environmental science, "string theory" in physics, or the reasons for the collapse of Communism in Eastern Europe.)
- A text or texts regarded as central to the development of our knowledge and understanding in different fields of human inquiry (e.g., Marx's *Capital* or Darwin's *Origins of the Species*).

In the *Global Environment*, seminar topics cover a wide array of environmental subject matter. Each year, at least four of these spring seminars are designed and taught by the course's GSIs. An additional three to four of these seminars are offered by either cluster faculty, IoE affiliated faculty members, or visiting scholars. The preliminary titles of these seminars are listed in the fall and winter syllabi, and around the fifth week of the winter quarter, students are given 1-2 page descriptions of each course's seminar topic and requirements (writing, exams, field trips, etc.) At the time that these descriptions are distributed, everyone offering a seminar is introduced in lecture and given some time to talk about what they hope to cover in their course.

The spring seminars are, without question, one of the high points of the *Global Environment* cluster experience. These seminars afford the cluster's GSIs the rare opportunity of designing and offering a course of their own, an experience that is valuable to them intellectually and professionally. Faculty enjoy these courses because they offer them an opportunity to introduce a whole new generation of students to their work. And for freshman students, cluster seminars provide them with a small format learning environment that is unlike anything that they have experienced in high school or college.

Student surveys and faculty/GSI interviews both confirm the success of these cluster seminars. A considerable number of the students surveyed in the 2001-2002 year-end *Global Environment* cluster survey, for example, indicated that the spring seminar was the single best aspect of their yearlong experience in the course. The principal reasons that these students cited for their enjoyment of the spring seminars were:

- The ability to work closely with an instructor on a project of shared interest;
- Increased interaction with one's fellow students; and
- The freedom to pursue a research interest of their own in some depth.

Faculty and GSIs also cite the spring seminars as one of the best aspects of their cluster experience. In doing so, instructors note that Global Environment students bring a special intellectual and social dynamic to their courses. The fact that these students have been exposed to a broad range of environmental subject matter during the fall and winter quarters enables them to engage in substantive seminar discussions. The writing and library assignments that cluster students complete prior to the spring quarter frees up precious time that might otherwise need to be spent on the basics of college composition, or the location of environmental research materials on campus. And the familiarity that the cluster's students have with one another and the different instructors in

the course also makes for a more comfortable classroom environment that is conducive to discussion and group work.

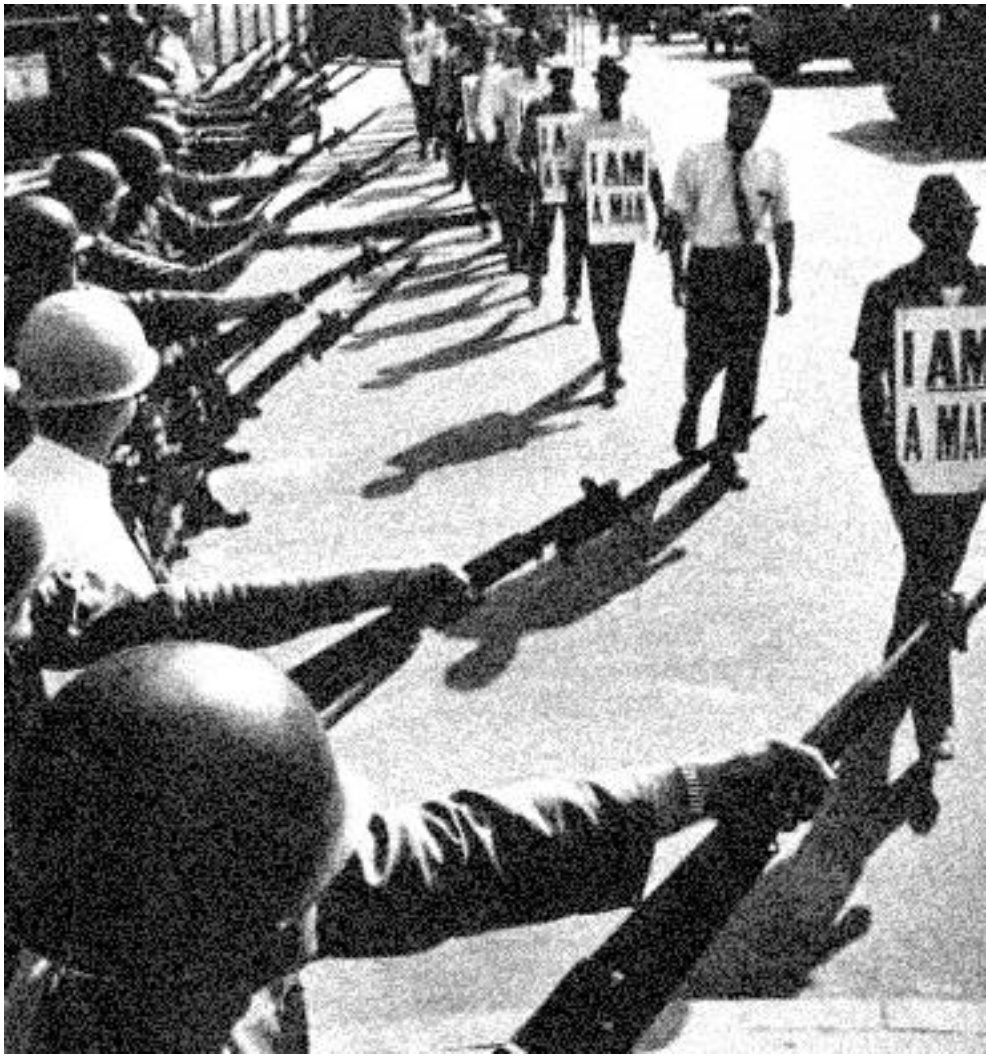
***Final Thoughts: Reflections and Ruminations on the Global Environment Cluster Experience***

As the foregoing makes clear, the *Global Environment* cluster has been a remarkably stable and successful course. This cluster enjoys the support of a considerable number of faculty on campus, and it is blessed with excellent faculty-graduate student instructor relations. The course's various instructional teams have found a way to integrate and teach their often disparate subject matter, and they have managed to achieve this end through a process that has exposed freshmen to a wide range of best practices in teaching and learning. Assessment data also indicate that the *Global Environment's* spring seminars provide all of their participants—faculty, GSIs and students alike—with a stimulating and enjoyable intellectual experience.

A number of factors appear to be responsible for the overall success of this cluster. They are:

- The symbiotic relationship between the *Global Environment* cluster and UCLA's Institute of the Environment. As this case study makes clear, the *Global Environment* has been the ideal vehicle for the advancement of the instructional aims of IoE. In return, the Institute has provided the cluster with financial support and a stable pool of faculty and GSIs that are committed to interdisciplinary teaching and research.
- The good fortune of hiring a single coordinator for five of the cluster's six years of existence. Keith Stolzenbach's patience, good humor, and long experience at the helm of this cluster have provided the *Global Environment* with an unparalleled stability and an invaluable institutional memory.
- The truly collaborative nature of the instructional team's efforts. Everything from syllabus design to the grading of student assignments has been done collectively and with input from both the cluster's faculty and GSI complements.
- The seriousness with which the cluster faculty take the interdisciplinary, collaborative aims of the cluster program. They continue to struggle with the question of how best to integrate their different disciplinary languages into a set of lectures that deepen freshman understanding of the environment's parts, while at the same time demonstrating how those parts are interconnected in a seamless whole.
- The cluster teaching teams' willingness to experiment with a wide range of instructional best practices—newsletters, debates, vignettes, research-based writing assignments—in their efforts to advance the aims of their course.

Taken together, all of these efforts have made, and continue to make, the *Global Environment* an entertaining, educational, and enlightening experience for its participants.




# Inside IrD:
## The Story of the Interracial Dynamics Cluster

Jeffrey Louis Decker, the author of this case study and currently co-coordinator of the Interracial Dynamics cluster, has taught American literature and media culture at UCLA for the past ten years and has been a member of the Interracial Dynamics faculty teaching team since 2000. His study examines classroom multiculturalism in a post-affirmative action era, and is based on archival research, data collected by the Office of Undergraduate Evaluation and Research, interviews with colleagues, and personal experience.

## INSIDE IRD: THE STORY OF THE INTERRACIAL DYNAMICS CLUSTER

The mission of any great university is to educate students to live in a democratic society. A decade ago, at a time when demographers predicted that multiculturalism would become the face not only of California but of America in the twenty-first century, UCLA's Academic Senate resolved it "important that all undergraduates study multicultural interactions, and develop the ability to analyze complex, multicultural issues from different perspectives." The *Interracial Dynamics* (IrD) freshman cluster contributes to a curriculum that understands pluralism and democracy as mutually reinforcing categories.

Behind almost everything we do is the question: How can a nation as ethnically diverse as the United States nurture its sense of unity and community? IrD's mission is not primarily to preach racial tolerance or even to advocate sympathy for "others" but to create a learning environment conducive to free speech and open-ended dialogue. This means, as one IrD instructor puts it, "diffusing the idea … in students' minds … that this is … an issue that just is a person-of-color issue rather than something that affects people across … the board." It also means helping students to feel empowered to affect personal and social change.

> *Almost everyday I go back to the dorms, and a racial topic will come up. I say, "This is so my Interracial Dynamics class," and in turn, my hallmates end up saying, "This is so Interracial Dynamics." I learned more applicable information from this class than any other class. So much history, politics, social issues, and icons were covered in this course, and I believe I will hold it in my heart for at least the rest of my career @ UCLA. Hopefully, I will grow beyond that.*

### How We Got Here

The story of the Interracial Dynamics cluster is inseparable from the longer history of multiculturalism across the United States and, more specifically, at UCLA. Multiculturalism first made its appearance on college campuses in the late 1960s and early 1970s through the establishment of ethnic studies programs and centers. As early as 1969, UCLA responded to student demands for such programs by establishing the Center for Afro-American Studies. Soon after, other ethnic studies centers – American Indian Studies, Chicano Studies, and Asian American Studies – were established on campus. By the 1980s, the so-called Canon Wars dominated academic debates over multiculturalism. At UCLA, faculty initiatives to expand multicultural content in curriculum began to take shape. The fight was not only over whether marginalized cultures should be mainstreamed into Western and American civilization courses but also over *how* to institute diversity. Would diversity be fulfilled once marginalized cultures were "added" to the mainstream curriculum? Or, would diversity function as a corrective to a history of racial (and sexual) oppression and exclusion? For a state-sponsored university such as UCLA, the stakes were heightened by the fact that the student population increasingly reflected the changing demographics of California, where non-whites were becoming the majority.

In the early 1990s, UCLA's Academic Senate appointed a series of task forces to study the issue of creating a multicultural course requirement within the General Education curriculum. The Senate ultimately rejected calls for a "diversity requirement" and instead approved on May 18, 1993, three resolutions recommending that issues involving ethnic and gender diversity be merged into the existing curriculum. The resolutions on Multicultural Studies and Course Development read as follows:

- **Resolution 1**: In our evolving, pluralist society it is important that all undergraduates study multicultural interactions, and develop the ability to analyze complex, multicultural issues from different perspectives.
- **Resolution 2:** The Faculty and the Administration are encouraged to initiate and support the development of new courses, the revision of existing courses, and other measures that develop the student's ability to analyze multicultural issues from different perspectives.
- **Resolution 3:** The Council on Undergraduate Education is requested to report annually to the Legislative Assembly on: 1) specific measures adopted by the Faculty and the Administration; 2) the success of achieving the objectives specified in the first two resolutions; and 3) the possible need for further efforts, including the need for curricular requirements to achieve these goals.

In response to Senate Resolution 2, a Joint Advisory Committee on Multicultural Studies was convened in the fall of 1993. Its task was to review and fund faculty proposals to develop new courses or modify existing ones for the purpose of analyzing multicultural issues. When three English Department faculty – King-Kok Cheung, Valerie Smith, and Richard Yarborough – responded to the Committee's request for proposals under the rubric of "Interracial Encounters in American Fiction," it marked the earliest articulation of what would become the Interracial Dynamics cluster. In the spring of 1994, the Multicultural Studies Committee awarded the "Interracial Encounters in American Fiction" proposal a grant to modify an existing English Department course (English 85: The American Novel) and to develop a new one (English 179: American Literature in Comparative Contexts).

Over the next few years, UCLA's Provost, Brian Copenhaver, appointed a faculty-student committee to study ways to reform the College of Letters and Science's General Education curriculum. In 1997, the committee submitted *A Proposal for Change*, which had as its centerpiece the freshmen cluster course. When Vice Provost Judith Smith initiated a freshman cluster pilot program, requests for proposals were solicited in early 1998 and, in an effort to extend the work done by the "Interracial Encounters in American Fiction" faculty, Professor King-Kok Cheung spearheaded an effort to garner approval for an interdisciplinary cluster course titled "Interracial Dynamics in American History, Literature, and Law."

IrD's origins extend beyond the gates of the university. The cluster had its beginnings as an optimistic response to a moment when our ethnic diversity and our democratic ideals and institutions were at odds. The 1993-94 Multicultural Studies grants were, according to Cheung, "designed to encourage comparative ethnic research in the wake of the [April 1992] L.A. riots." Unlike the riots that took place in the 1960s, which were widely perceived to be rooted in a conflict between blacks and whites, the events of 1992 were much more multiracial. In the immediate aftermath of the 1992 riots – and exactly one year to the day prior to the Senate resolutions on Multicultural Studies and Course Development – Cheung's colleagues in UCLA's Asian American Studies Center published an article in the English language edition of the Los Angeles-based *Korea Times* calling for universities to "take leadership by developing the needed multicultural/multiethnic curriculum materials."[27] The 1992 L.A. riots "made me want to go beyond literature," recalls Cheung, "and find an interdisciplinary approach to race relations."

[27] "Rebuilding Los Angeles: A Message of Hope from UCLA," *Korea Times* (18 May 1992): 7.

Political developments in California during the nineties also contributed to the desire of Cheung and her colleagues to develop new curricular approaches to multiculturalism. The year 1998 marked the passage of the last of four propositions that were placed on the ballot during the 1990s. Prop. 227 – "English for the Children" – severely limited bilingual programs in schools. Two years earlier Prop. 209 – the California Civil Rights Initiative – was approved by voters with the intent of dismantling affirmative action. In 1994, voters passed two initiatives: Prop. 187 – "Save Our State" – designed to withhold education and medical care from undocumented immigrant children and their families, and Prop. 184 – "Three Strikes and You're Out" – which had the effect of incarcerating greater numbers of poor Hispanic and African American young men. The California electorate was, of course, responding less to the rise of ivory tower multiculturalism than to anxiety about an economic recession and fears associated with demographic predictions that the combined populations of ethnic minorities in California would soon outgrow the English-speaking white population.

**Who We Are**

These predictions were confirmed by the 2000 U.S. Census, which identified California as the first minority-majority state in the nation. The census also indicates that Latinos, for the first time, have replaced whites as the largest ethnic group in both the city and county of Los Angeles. Los Angeles is one of the most ethnically diverse cities in the state in one of the most ethnically diverse states in the country. Likewise, the *Interracial Dynamics* cluster is one of the most ethnically diverse courses on one of the most ethnically diverse campuses in the nation. Even after Prop. 209 ended affirmative action in California higher education admissions, nonwhites comprise well over half the undergraduate student enrollment at UCLA.

The *Interracial Dynamics* cluster was launched in the same year – 1998 – that California law compelled UCLA to terminate its policy of using racial preferences in undergraduate admissions. Nevertheless, it comes as little surprise that a course on interracial dynamics typically enrolls a larger percentage of nonwhites than is reflected in their overall numbers on campus. "The majority of [IrD] students are minorities," observes one student in the cluster evaluation, "so the subject matter is very relevant."

**Table 6.2 Ethnic/Racial Composition of the Freshmen Class, Cluster Students and IrD Students**

| | % of all freshman students (N=21,038) | % of all cluster students (N=4,207) | % of students within IrD (N=592) |
|---|---|---|---|
| American Indian | 0% | 0% | 0% |
| Asian | 41% | 39% | 48% |
| Black | 4% | 3% | 10% |
| Chicano/Latino | 13% | 12% | 16% |
| White | 32% | 34% | 19% |
| Other/ Prefer Not to State | 10% | 11% | 7% |

Source: College of Letters and Science, UCLA, 2003; Office of Academic Planning and Budget, UCLA: Data from 1998-02

While Table 6.2 discloses the extent to which minority students are drawn to our cluster, it does not show the degree to which underrepresented minority (Black and Chicano/Latino, in particular) enrollment in IrD has steadily increased over the past five years. In 1998, the cluster's inaugural year, the percentage of Black enrollment in IrD (3%) was less than the percentage of Black freshmen enrollment at UCLA (4%). By Academic Year 2001-02, IrD Black enrollment had tripled (to 15%) even as Black enrollment on campus fell to 3%. Likewise, in the cluster's first few years (1998-2000), Chicano/Latino student enrollment in IrD stood at around 12%, which

matched the percentage of Chicano/Latino freshmen on campus. Over the past two years, however, IrD Chicano/Latino student enrollment has doubled (to about 25%) while the percentage of Chicano/Latino freshmen at UCLA has shown only modest gains (to around 15%).

A number of factors contribute to the relatively high enrollment of underrepresented minorities in IrD today. One of the most important is the role played by the Academic Advancement Program (AAP). AAP's mission is to guarantee access and opportunity to students who face the greatest social barriers to higher education. They do so by providing tutorial resources that boost AAP student retention and graduation rates and admission to graduate and professional schools. Since the passage of Prop. 209, AAP eligibility is no longer based on race but on personal and academic factors, such as family income and the level of parental education.

IrD students – regardless of their ethnic background – are more likely than other students at UCLA to be eligible for and participate in the services offered by AAP (Table 6.3). Over the past couple years, AAP enrollment in IrD is over 40%, twice the rate in other cluster courses as well as among all freshmen enrolled in the College of Letters and Sciences.

**Table 6.3 AAP Students in the Freshman Class, Enrolled in All Clusters and in IrD**

| | % of all L&S freshman students (N=17,494) | % of all cluster students (N=4,207) | % of students within IrD (N=592) |
|---|---|---|---|
| 1998 | 13% | 9% | 16% |
| 1999 | 18% | 16% | 24% |
| 2000 | 17% | 20% | 31% |
| 2001 | 14% | 23% | 42% |
| 2002 | 20% | 18% | 41% |
| **5-year Average** | **17%** | **17%** | **31%** |

Source: College of Letters and Science: Data from 1998-02

Demand for AAP services has become so great among our students that AAP now assigns one of its tutors to work directly with IrD. The AAP tutor plays an active role in the cluster by attending every lecture and by being on hand to answer questions, particularly about how all freshmen at UCLA can take advantage of the array of counseling services available. The legacy of AAP in IrD was brought home to us this past academic year when the AAP-assigned tutor was for the first, and probably not the last time, an IrD cluster alumnus. Although attrition is typically high among the type of student targeted by AAP as well as among underrepresented minorities at universities throughout the nation, the intimate relationship between AAP and IrD is no doubt one reason why attrition in IrD is among the lowest across cluster courses (see Table 3.12).

The diversity of the IrD student body is mirrored in its instructional cohort – graduate student instructors (GSIs) and faculty alike – who, when compared to the overall instructional cohort at UCLA, are also drawn disproportionately from the ranks of minorities. For example, whereas minority graduate students comprise 40% of the aggregate number of graduate students on campus, all but one IrD GSI (out of a total of fifteen different GSIs) over the past five years has been a member of a racial minority. During the same period, while minorities constituted 20% of faculty at UCLA, all but two of thirteen IrD faculty were nonwhite.[28] Students voice their appreciation of

[28] Between AY1998-99 and AY2002-03, underrepresented minorities constituted 8% of all UCLA faculty, 12% of all cluster faculty (see Table 5.1), and 50% of IrD faculty.

the multiracial composition of the IrD instructional team with comments such as: "the diversity among instructors is so much more interesting [and] makes the class better."

Students use words such as "inspiring," "provocative," and (most frequently) "eye opening" to describe the cluster in their course evaluations. Occasionally white students – who comprise over 30% of all undergraduates at UCLA but usually less than 20% of IrD enrollment (Table 6.2) – feel the cluster unfairly marks them as "oppressors." Some, however, find that being racially conspicuous for the first time in their lives is a productive learning experience.

> *[The cluster] really forced me to think about somewhat uncomfortable revelations about myself and my role in racism and prejudice – this is the first class that has taken me out of my comfort zone – I think that shows that I have learned a lot, beyond just memorizing facts.*

We encourage all of our students to make "uncomfortable revelations" about their complicity with racism and prejudice even as we deploy a variety of pedagogical strategies to diffuse racial tensions associated with "identity politics" (where personal experience is considered the foundation of knowledge). One way is to address the issue of "whiteness" explicitly. We assign course readings and give lectures aimed both at making whiteness visible as a racial category and at recovering its constitutive histories. Examining how some European immigrants (e.g., Irish, Italians, and Jews) were initially perceived as nonwhite when they arrived in the United States provides white students self-definitions by which they are better able to recognize their own power and privilege in the context of interracial dynamics. Moreover, this lesson provides all students, nonwhite as well as white, with the means to better recognize the socially constructed nature of their own racial identities. It allows students to have informed opinions on, for example, whether Asian Americans – the most recent immigrants to wear the "model minority" label – will ever achieve "whiteness" and the privileges associated with it in the eyes of the majority of Americans.

Everyday our students witness the collaboration between white and nonwhite faculty, all of whom possess the knowledge and expertise to lecture on a variety of racial experiences. If, by assembling a multiethnic instructional cast, antagonisms associated with identity politics are less likely to emerge within the cluster, it's also not uncommon for students of color to remark on the rareness and the significance of seeing and listening to lectures by UCLA faculty who look and sound like them. Having a multiracial teaching team, remarks one student, "provided us with different views, backgrounds, and experiences, which is the core of the class – interracial dynamics."

## What We Do

### *Faculty Recruitment*

Bringing together an ethnically diverse teaching faculty presents considerable challenges for the Cluster Program. An obvious obstacle is the fact that, at UCLA, almost 80% of the faculty are white, while only 8% are from the ranks of underrepresented minorities. As a result, faculty of color tend to be overextended in their professional commitments. One IrD coordinator states it plainly: "[A] lot of the ethnic faculty, a lot of the faculty of color are involved in a lot of different things." Institutionally speaking, although the Institute of American Cultures provides support to the four ethnic studies *research* centers, there is no comparable university mechanism for building bridges between the ethnic studies Interdepartmental Degree Programs (IDPs), which bear the largest responsibility for ethnic studies *teaching* at UCLA. Over the past five years, the Interracial Dynamics cluster has become a tacit instrument for creating the conditions under which the ethnic studies IDPs can work together. To further this pedagogical objective, the Cluster Program is seeking ways to formalize the relationship between IrD and the ethnic studies IDPs (see "Where We're Going" below).

To date, the most effective IrD faculty recruiting strategy has probably been personal bonds among prospective faculty. Many IrD faculty offer the refrain: "I did it because the coordinator, a friend of mine, asked me to do it." Another important factor is that faculty recognize the unique opportunity to teach the topic of interracial dynamics in an interdisciplinary context. "[T]here was not a lot of opportunity at UCLA to put that into practice," remarks one IrD faculty member, "and this was the perfect kind of class to do that."

Despite the challenges of interdisciplinary team teaching, for some IrD faculty it has had the unanticipated benefit of providing them with new research opportunities.

> *It would have been much easier for me to teach my own class. Even if teaching a whole course of my own, it would take less energy than a cluster. It was worth it … because of the reward of learning stuff and interacting, it was more of a research type of program in my mind in the sense that … I came up with new kinds of questions for … my own research [by] teaching this cluster…. I learned a lot that I probably could not have and there is no other research venue [at UCLA] that would have brought us together in a weekly interaction for that long, so it changed the way I thought about things.*

At a large university – where there's an emphasis on research and where departments tend to be isolated from one another – cluster teaching is one of the few venues that allow faculty to engage in sustained interdisciplinary work of any kind. Moreover, when students and teachers share a scholarly pursuit, the faculty are likely to make a greater commitment to the students' process of discovery and the students are rewarded with a greater sense of intellectual purpose and community.

***Tag-Team Teaching***

IrD faculty have sought ways to take advantage of the interdisciplinary team opportunity afforded by the Cluster Program. In particular, the 2000-2002 IrD instructional team experimented with a radically interactive model of interdisciplinary teaching. All clusters draw faculty from different disciplines and most involve the entire faculty team in end-of-lecture Q&A sessions or the occasional panel discussion. The IrD faculty who participated between 2000 and 2002 decided to implement an everyday lecture mode that became affectionately known as "tag-team teaching."[29]

> *One of the things we found as a strength … is that none of us lectured for a whole class…. [T]here would be anywhere from two to four of us presenting stuff … [O]n any given day … we'd … be responsible for different texts and obviously what we did with them and the way we did them. And in many respects, it was kind of impromptu, it's almost like improv comedy, except we weren't very funny [laughs], in that … you don't know what your colleague's gonna say about X text until they get up there and say it and then the challenge is to build continuity…. I thought for the faculty it was pretty stimulating…. You just don't sit there and go to sleep [laughs], you got to really pay attention.*

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[29] The "tag-team teaching" concept is inspired by the world of professional wrestling, where one team-member cannot enter the ring until the other tags or touches hands with him/her on leaving it. This form of team teaching should be distinguished from a panel discussion arrangement as well as the conventional lecture format, where one faculty lectures for an entire class. Tag-team teaching can be differentiated from professional wrestling by the fact that the former relies heavily on improvisation whereas the latter has a reputation for being essentially contrived.

There are practical reasons why most cluster teaching teams don't employ this method. First, it doesn't conform to the solitary lecture format with which most faculty are familiar. Second, it demands an extraordinary amount of preparation time. Faculty cannot rely on well-worn lecture habits or notes and are compelled to be active listeners during a colleague's lecture. And it essentially forecloses the team's ability to incorporate "guest lectures," a practice common to many GE clusters (for better or worse, guest lecturers were never invited to participate in IrD between 2000 and 2002).

Another reason faculty don't gravitate toward the tag-team model might be that it doesn't guarantee a better learning environment for students. Tag-team teaching is a mixed blessing. Some students find this instructional choreography stimulating: "I like the way they would do 'tag-team' lectures – it kept the presentations on a good pace." Others complain that the impromptu mode is over-stimulating, making them feel "disoriented" and "exhausted" rather than enlightened and energized. When the tag-team format fails, it's not clear whether the fault lies with faculty (a lack of organization) or students (an unwillingness to engage an unconventional lecture format). If nothing else, openly interactive lectures make students more aware that methodological and ideological differences exist between the disciplines and the faculty. One student, who puts a positive spin on tag-team teaching, states that while professors have "varying, and sometimes contradictory views, [this is] interesting and a great aspect of the class."

***Student Dialogue and Debate***

We also strive to find the best strategies for promoting dialogue and debate among our students. From the start, the instructional goal of IrD has been to teach students to be culturally fluent in the new multi-ethnic complexities that have displaced the old black-white paradigm of U.S. race relations. Simply put, how do we define diversity? One way we address this question is to devote an entire lecture to stage a student debate on affirmative action. This is an obvious topic for a class of this kind but it's always surprising to find out how little students know about an issue that directly affects their lives. The debate is made up of a dozen student volunteers who break into two teams – one for and one against affirmative action as an effective strategy for resolving racial discrimination – and they research and prepare their positions one week prior to the debate. During the debate, students in the audience (who have been assigned readings on affirmative action just prior to the debate) are given the opportunity to ask questions to either team and finally vote on a winner. The outcome is that students rigorously engage not only the efficacy of "preferential treatment" in addressing disadvantage but also the relative merits of different types of preference – based on gender and income, as well as race – in higher education admissions and elsewhere.

A much less structured but no less vital example of student dialogue and debate can be found on the "Discussion Board" of the IrD website. Postings on the discussion board were especially prolific during winter 2000, when students logged approximately 330 postings (totaling 263 pages of printed text). One GSI, who facilitated the conversation by occasionally providing follow-up questions and relevant internet links, locates the motivation for the extensive use of the discussion board as the combination of "great students and unfortunate racial incidents in the media." In fact, most postings discuss materials related to but not directly covered by course content. Topics for discussion included TV, movies, music, politics, stereotypes, employment, romance, and campus news (Figure 6.1). The discussion board is, as one GSI concludes, "a great testament to how the students were able to make connections in 'real life.'" An IrD faculty remarks, "the material … isn't just … an abstract intellectual exercise [but] something that [students] experience."

**WINTER QUARTER 2000**

**GE CLST 20B Discussion Board**

**Help Sort Messages Show All Messages Show Selected Messages**
**Go to End Main Page Announcements List of Links**

POST MESSAGE

- the novelty of being a busboy - *23:43:30 2/28/2000* (3)
  - Re: the novelty of being a busboy - *01:27:53 3/04/2000* (0)
    - Re: Re: the novelty of being a busboy - it's even deeper than you think - *00:30:21 3/06/2000* (0)
- Teaching Thinking as a Cure for Racism - *23:18:29 2/28/2000* (1)
  - Re: Teaching Thinking as a Cure for Racism - *01:35:09 2/29/2000* (0)
- Malcolm X and gender issues - *23:06:40 2/28/2000* (0)
- Dominating: China Men or Women? - *23:01:59 2/28/2000* (1)
  - Re: Dominating: China Men or Women? - *03:19:37 3/01/2000* (0)
- assimilation - *22:53:07 2/28/2000* (1)
  - Re: assimilation - *01:42:33 3/04/2000* (0)
- Asian American Female Qualities - *21:41:26 2/28/2000* (1)
  - Re: Asian American Female Qualities - *23:12:22 2/28/2000* (0)
- I intend to marry a white man. - *21:25:32 2/28/2000* (0)
- Margaret Cho: What happens to Asian American women on tv? - *21:25:17 2/28/2000* (0)
- No on Prop. 22 - *21:04:44 2/28/2000* (3)
  - Re: No on Prop. 22 - *08:51:45 2/29/2000* (0)
- RALLY!!! - *21:19:29 2/28/2000* (1)
  - Re: RALLY!!! - *02:25:47 2/29/2000* (0)

**Figure 6.1 Sample from IrD discussion board**
*(Names of those who posted have been removed)*

### *Media Literacy*

Most of us get our information about racially divisive issues, such as affirmative action and hate crimes, from the news media. To provide students with the critical skills not only to comprehend but critique the news as a source of information, we've created an ambitious "media literacy" winter quarter research project. The assignment focuses on the Los Angeles race riots of 1965 and 1992 (a topic introduced to students through prior course readings and lectures) and has two parts: a workgroup annotated bibliography and an independent research paper.

We give students access to a wide variety of newspapers – including those characterized as local, national, and international, mainstream and alternative, English language and non-English language, liberal and conservative – to allow them to take measure of the range of meanings given to the 1965 and 1992 riots by print journalism. In order to develop this assignment, the instructional team worked with five different libraries from across campus. The librarians helped us bring together twenty-four different newspapers from 1965 and 1992 on microfilm, placed them

all on reserve in Young Research Library's Microform and Media Services reading room, and provided students with a "Microfilm Guide" specially tailored to the assignment. Next, we worked with Social Sciences Computing to create a web-based "Bibliography Board" where students could post their preliminary research findings.

During step one of the assignment, we managed the prospect of unleashing over one hundred and sixty students on Microform and Media Services over a four-week period by placing students in small workgroups and assigning them specific newspapers and dates (all newspapers and dates had been previewed by the instructional team). Student workgroups completed step one of the assignment by posting annotated and non-annotated entries on the Bibliography Board. These postings totaled upwards of 1500 bibliographic entries (over 300 which were annotated) and more than 700 pages of printed text.

Step two asked students to write an independent research paper on either riot coverage of two or more different newspapers from the same year (either 1965 or 1992) or riot coverage from one or more newspapers across different years (both 1965 and 1992). Students began phase two of the assignment by examining data collected by workgroups in step one. This presented another logistical hurdle. How do we make the huge annotated bibliography database user-friendly for independent student research? Working closely with technicians at Social Sciences Computing, we developed two strategies for handling the information overload. First, Social Sciences Computing provided a search engine capable of sorting entries on the Bibliography Board by key word or phrases. Second, using funds provided by an Office of Instructional Development Mini-Grant, we asked librarians at the Southern Regional Library Facility to digitize microfilm images of the front page of first day riot coverage for every newspaper under consideration (Figure 6.2). These web-based devices make independent research more efficient by allowing students to familiarize themselves with the archive before returning to the newspaper microfilm on their own. The independent research paper culminated in a "peer editing" workshop (held during discussion section) where students read drafts of each other's papers. The workshop allowed students to continue to learn from one another, in this case by evaluating the writing and research of others as a means to reflect on their own scholarship.

# First Day/Front Page Riot Newspaper Coverage

You will need Adobe Acrobat Reader to view the image links below

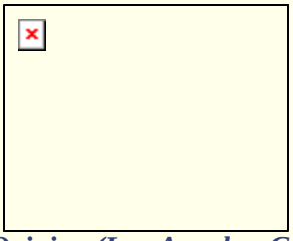
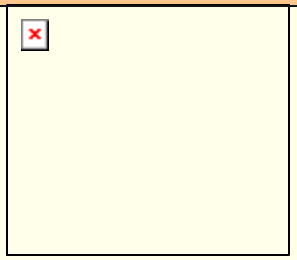
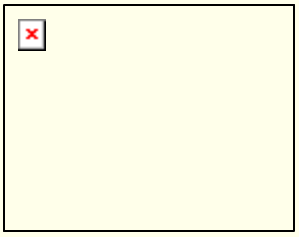
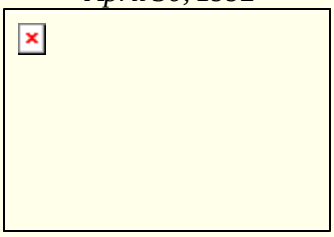
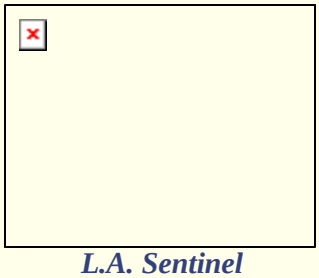
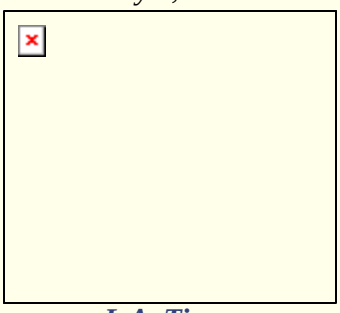
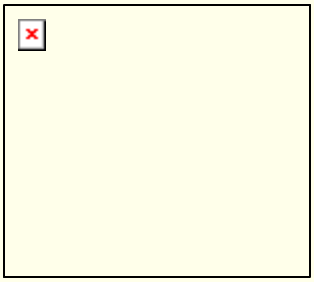
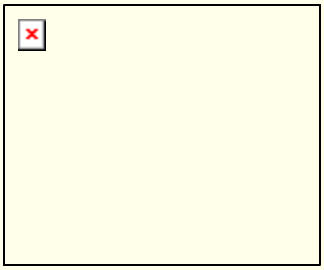
| *1965 Newspapers* | *1992 Newspapers* |
|---|---|
|  ***La Opinion (Los Angeles, Calif.)*** *August 13, 1965* |  ***Daily Bruin*** *April 30, 1992* |
|  ***L.A. Free Press*** *August 20, 1965* |  ***Korea Times (English language edition)*** *May 4, 1992* |
|  ***L.A. Sentinel*** *August 19, 1965* |  ***L.A. Times*** *April 30, 1992* |
|  ***S.F. Chronicle*** *August 12, 1965* |  ***London Times*** *May 1, 1992* |

**Figure 6.2 Sample from an IrD media literacy assignment**

***Winter Break Bridge Assignments***

Interracial dynamics is a profoundly lived experience, one that touches our students at the most basic level and one that can be effectively studied outside the library or the classroom. To this end, we've exploited the unique twenty-week lecture/discussion design of the cluster by asking students to participate in an off-campus assignment, which is partly completed between the fall and winter quarters. The winter break "bridge" assignment is an annual feature of IrD. While the specific topic has changed over the years, the assignment has consistently been rooted in ethnographic fieldwork (a methodology particularly common to Social Science disciplines). One year, a political science faculty took the lead in generating a "U.S. Census and Your Neighborhood" assignment, where students interviewed people in their home or on their street about their perceptions of the racial and class profile of their neighborhood. After returning from the holiday, students were instructed to visit the U.S. Census website and gather data on the racial and income composition of their neighborhoods. Students were then asked to compare their interview data to the census information in order to measure not only the empirical accuracy of people's subjective perceptions but also to consider how assumptions about race and class filter our understanding of people and social interactions.

Other winter break "bridge" assignments have been more rigorously ethnographic. One, developed by a faculty member from Sociology, involves students as "native informants" who observe and record the presence or absence of ethnic "codings" in the performance of holiday family rituals. Another, created by an anthropologist on the faculty team, asks students to become "participant-observers" by, instead of studying others, studying themselves. This assignment has the added benefit of forcing students to become conscious instruments of their own learning. More specifically, students are instructed to spend time (an evening, or a couple of hours in an afternoon) observing and participating in the activities of a place (a sports event, a club, a store, mall, restaurant, etc.) where they are ethnically and/or racially conspicuous. We want students to consider the relation between place and consciousness or, more specifically, how feeling conspicuous in a particular setting affects behavior. Students are urged to pair with someone who is not conspicuous in the chosen setting. The primary role of the inconspicuous "buddy" is to note the participant-observer's and other people's responses and share that information with the participant-observer once the activity is over. This assignment prods students to not merely examine but also exercise their own agency by doing more than uncritically accepting their prescribed social location.

***Spring Capstone Seminars***

Student academic performance in spring seminars is particularly advanced because teachers can exploit the knowledge students acquire from the cluster during the prior two quarters. One instructor, who teaches a seminar on Latino culture and politics, noticed the development of his students' critical thinking skills over the course of the year. As early as "the beginning of spring quarter … you could really see the way in which [students] were looking at the world around them in a different way."

Another instructor, who focuses her seminar on sports and identity, asks her students to utilize concepts learned in fall quarter. For example, she directs her students to recall how they came to understand the idea of the "cult of true womanhood" as it is applied to slave women. She then asks them to think about how the same concept "play[s] out in terms of black women running track" today. "I would bring back the term," she explains, "but within a different context."

The same instructor, perhaps taking her cue from the winter break bridge assignment, found that the best way to keep things fresh was to not only get outside the classroom but leave Westwood altogether:

> *[B]y the spring I was really thinking in terms of regeneration and rebirth…. We took a great field trip to Little Tokyo [near downtown L.A.]. It just so happens that the Japanese-American national museum had an exhibit on Japanese-Americans in sports. So we caught a shuttle over there, and we went to the exhibit … [A]fter that, we just hung out in Little Tokyo … [I]t was just a great bonding experience. [Another time we] met on a basketball court, and talked about this novel that had to do with basketball players. It was really great.*

### *Media Events*

Outside classroom experiences, such as field trips, are one way IrD faculty facilitate a "living-learning" environment for our students. It is also not uncommon for IrD instructors to return to the dorms to dine with students. These meals are often coupled with required evening screenings of movies, which range from director D.W. Griffith's cinematic classic *Birth of a Nation* to comedian Margaret Cho's irreverent *I'm the One That I Want*. We invite directors and performers who are particularly interested in questions of identity to participate in the screening and discuss their work. For instance, *Luminarias* director Jose Luis Valenzuela and *Punks* director Patrik-Ian Polk joined IrD for a screening of their films (both of which, at the time, were only in theatrical release) and Q&A session. Our most widely publicized event took place when Margaret Cho spoke in class after students had screened her film *I'm the One That I Want* (also in theatrical release at the time). The event was featured in the local media, including in the "Living" section of the *Los Angeles Times*. A camera crew captured Cho's IrD classroom performance on tape and transferred it to the "Special Features" section of the DVD version of the film.

## Where We're Going

### *Textbook*

The teaching teams have worked on ways to ensure that IrD's legacy endures in an academic context as well. Given that "interracial dynamics" is a fresh approach to teaching race relations in the university, the first teaching team proposed generating a classroom textbook for publication. The original prospectus states that the textbook is meant to provide undergraduate readers with the primary materials, synthetic analysis, and the overall historical narrative necessary to understand the conflicts and coalitions resulting from interracial dynamics in America today.

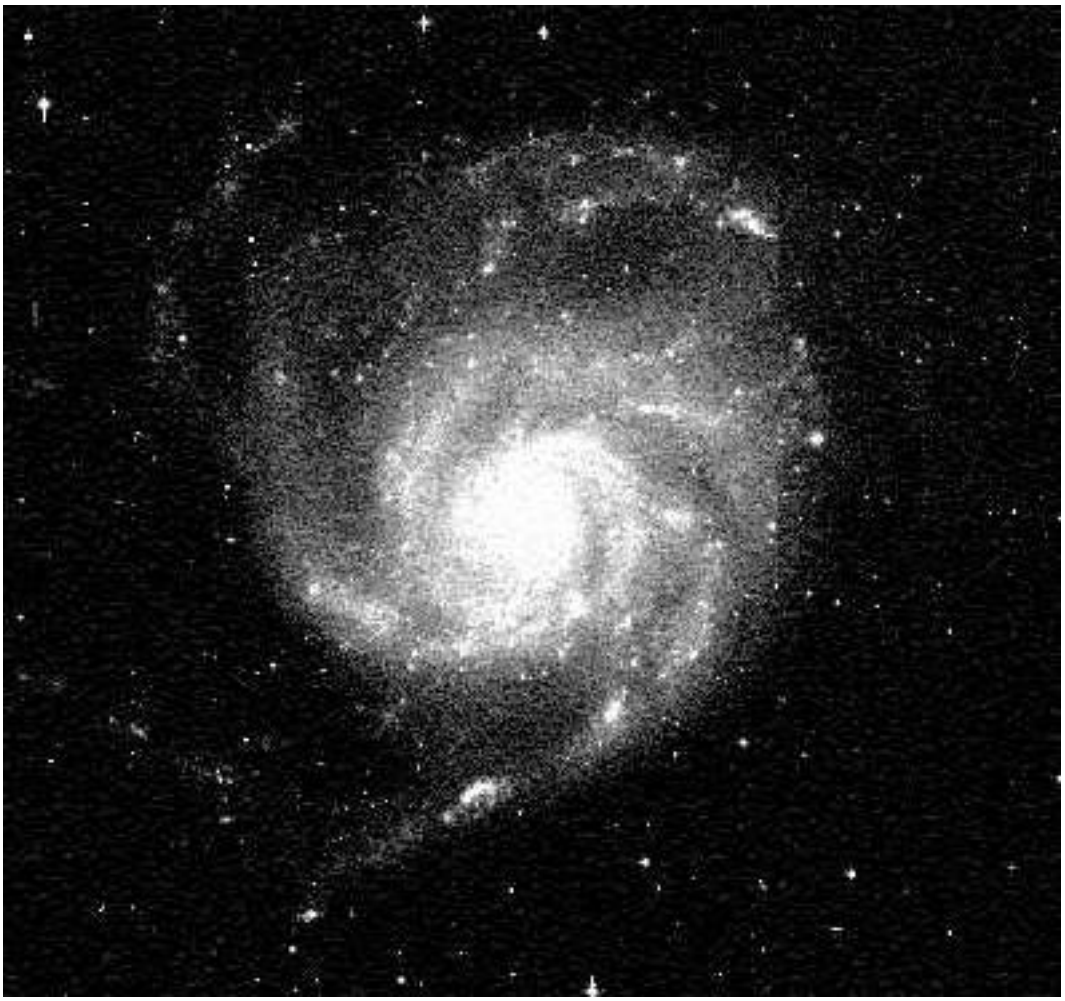
> *The readings [are] chosen for their accessibility, and the analyses, although reflecting the latest insights of scholarly research, [are] also deliberately communicated in as clear and understandable a manner as possible. This textbook has therefore been field tested, and incorporates the feedback of students and faculty alike. It is utterly unique in higher education, and answers a strong demand for multicultural texts that go beyond the individual analysis of different ethnic and racial groups. By focusing on the interracial dynamics, and the ways in which racial formations have operated in parallel or interdependent ways, this textbook goes beyond the binary black/white dichotomies that have dominated both race relations research and college teaching.*

Although a prominent publisher received the prospectus enthusiastically, the project stalled once the initial instructional cohort disbanded. Current IrD faculty have revived the textbook project in light of the lessons learned by successive generations of instructional teams.

***Gateway Cluster***

As the IrD textbook prospectus states, state-of-the-art multicultural education "goes beyond the individual analysis of different ethnic and racial groups." This is as true of curriculum as it is of course content. Traditional departments tend to isolate the experiences of different ethnic groups by offering standard courses on "race relations" rather than interracial dynamics. The newer ethnic studies Interdepartmental Degree Programs (IDPs), where most courses on race at UCLA are concentrated, primarily devote their resources to examining the unique experiences of specific ethnic groups (i.e., black Americans, American Indians, Chicanos, and Asian Americans).

Some IrD faculty, most of whom have an ethnic studies IDP affiliation, have begun thinking about how the cluster could be used to address these kinds of institutional constraints. More specifically, some have proposed transforming IrD into a class that not only teaches freshmen but also serves as a "gateway" course for undergraduate majors in one or more of the ethnic studies IDPs. The proposed gateway cluster would leave the freshmen cluster experience essentially unchanged but would offer additional discussion sections for ethnic studies majors who did not take IrD as freshmen. For ethnic studies majors and minors, the gateway cluster offers an opportunity both to take a class whose focus is interracial dynamics and to learn along side majors from the other ethnic studies IDPs. For faculty affiliated with the ethnic studies IDPs, the gateway cluster guarantees them an opportunity to teach in a collaborative, interdisciplinary, and multiracial ethnic studies venue unlike any other at UCLA.



# SINGULARITIES, SOLAR SYSTEMS, AND SENTIENT LIFE

## a chronicle of the cosmos cluster

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## SINGULARITIES, SOLAR SYSTEMS, AND SENTIENT LIFE
## A CHRONICLE OF THE COSMOS CLUSTER

### Knowledge and Its Limits

The challenge was this: How to put the universe in a nutshell?

How to take 160 just-out-of-high-school, mostly (sometimes even proudly) science averse students from the Big Bang to modern humanity, from the first light of the universe to the fading prospects of rapidly dying ecosystems, in one short year? How to put them on a first name basis with quarks and homeostasis and cladograms, so that they feel at home speaking the language of the cosmos? How to teach them to read spectral lines in starlight, radioactive tracers in rocks, fossil tracks in mud—so that they learn not only what is known, but how it came to be known, and why anyone (they, especially) should believe it?

And that's the easy part. They need also to understand the unreasonable effectiveness of equations (theory) in revealing hard truths, the astonishing power of simple (and not so simple) observations in overthrowing seemingly "obvious" facts; the impressive successes of the scientific method; also, its blind spots, its failures.

Yes, we really do know with great certainty what the universe was up to when it was barely a fraction of a second old. No, we still don't know the first thing about what the universe is made of--except that the vast majority of its energy and matter is unknown stuff entirely unlike ourselves.

Yes, we do know that every living thing on Earth descended from a common ancestor; we can put our fingers on fossils left by the 3 billion year old bacteria that exhaled the atmosphere we breathe today. No, we don't know, precisely, how any particular species come to be or what the future holds for ours.

### Setting the Stage

From the first lecture, the students get a sense of what's in store—as well as an introduction to the fact that their professors are on the front lines of this enterprise.

> *I can remember each of the professors standing up there, and I was struck by the fact that these were leading scientists in their fields, standing here in front of a bunch of freshmen, and they were so passionate…. I felt so welcomed. It was the first experience in my education where a teacher has said to me, there's this whole world out there that's really interesting. You may not be able to understand the mathematics of it, but I want you to know about it, because it's so cool. —Cosmos* alum

One professor shows X-ray images he took of a black hole in the center of our galaxy—burping after a meal; also baby pictures he studies in his role as stellar obstetrician, peering through infrared "goggles" into thick, cold clouds to see stars turning on in dust-shrouded nurseries. Another tells how he gets rocks from space to tell him stories of their origins, how he "interrogates" specks of star dust. A third is an expert on carnivorous beasts; she explains what the mechanics of the kill can teach us about evolution: there's a lot of detective work involved, based on careful measurements of teeth, holes they leave in skulls, scratches left by gnawing. It's more than a little overwhelming. Following along with the story of the universe requires, at minimum, physics, astronomy, geology, life sciences—all in enough depth to instill a minimum fluency, all with enough breadth to invite connections each field with the next, each epoch with the other, so it doesn't seem strange, after a while, to trace the origin of a particular shape of a beak of a bird on the Galapagos Islands to the

motions of continental plates powered by the slowly leaking radioactivity of atoms that got crammed with energy during a supernova explosion billions of years before our solar system was born.

> *When I describe (the course) to people, it sounds crazy. It sounds too ambitious. But I think we've found a recipe that works. When our students leave our class, they have an enormously expanded context for seeing themselves and their place in the universe.*
> —Astronomer and cluster coordinator Mark Morris

**First Steps—The Birth of the Universe**

It begins at the beginning, not only with the Big Bang but with the ABCs, the vocabulary students will need to understand how we know "what the universe is doing," as Morris puts it. This involves some basics of electromagnetic radiation (light) and quantum mechanics; some simple forces and ingredients, like "sticky" quarks and long range gravitation. It's not much to learn, a few simple concepts, but it's enough to forge some simple atomic nuclei. It's also enough to make it abundantly clear that galaxies all around us are speeding away from each other, faster and faster the farther away they are. Until at the far reaches of the universe, violent "quasars" are speeding away from Earth at a healthy proportion of the speed of light. "Those quasars are really hurtling," says Morris.

But wait, one might well ask. How can we know that? After all, our own little solar system is hardly standing still. Sitting on a Merry Go Round that extends beyond the planet Pluto, we are spinning around the Milky Way, falling toward the galaxy next door, speeding along with the local flow of galaxies to who knows where. "We're movin'!" says Morris. So how can we possibly hope to sort out, from our hardly steady perspective, how much of the motion we see is "ours," how much of things outside? How much is reality? How much illusion? What do these terms even mean from the standpoint of science?

This question, "How do we know?" is one of the themes that anchors the cosmos for students, ties the frequently strange goings-on "out there" to the thoughts and perceptions "in here," inside our heads. It's a process of thinking that's new to many of them, learning about evidence and how to weigh it, learning why scientists so often seem to change their minds while in reality zigzagging their way, ever-so-slowly, mostly surely, toward a better approximation of the truth.

> *The best thing is, we learned: how do we* know *what happened? How do we* know *how old the universe is? How do we* know *how old Earth is? The Big Bang is like this fantastic theory. I never figured there was so much hard evidence — Cosmos* student

> *They should learn to question everything they hear in their lives.*
> — Teaching Fellow Tony Friscia

The basis of current belief is an especially critical component because so much of what the students are introduced to is literally unimaginable. A universe with no center, or rather, every point the center; no matter where you sit, everything rushes away from you. "I can't imagine it," a student says. "The big bang happened everywhere at the same time," explains Morris. "All places were at the same place. If you don't have difficulty with that, you're either a genius or you don't understand what we're talking about."

As distant as this seems, it's all remarkably close to home. The Big Bang was long ago and far away, and yet the lithium that's used today to treat mental illness was created by its very heat. Between 10 seconds and three minutes, the basic ingredients of the universe were formed.

Meanwhile—as the universe cooled down enough for gravity to get a grip--the quantum mechanical quivering of that primordial soup formed clumps, the essential lumpiness that eventually expanded into clusters of galaxies, which in turn made possible everything from rocks to saber tooth tigers to us.

*The universe has changed drastically, many times over. If we can't get them to appreciate that change is upon us, always has been, always will be, and that change can be catastrophic, then we're all in big trouble. If we can't get them to appreciate (that about) trends in population, trends in environmental degradation, then we're all going to hell in a hand basket.* — Mark Morris

That lesson is hard to escape. Everything is coming into being, dying out. The seemingly sedate backdrop of quietly twinkling stars turns out, on closer inspection (with x-ray and gamma ray and radio "vision") to be a stupendously violent place. Stars 100,000 times as luminous as the sun "are burning their candle at both ends," says Morris. "These stars are not long for this galaxy." Everywhere, exploding stars pop off like firecrackers, collapsing into black holes that punch holes in space-time; galaxies collide, tearing each other to pieces "There's a lot going on out there."

It's violent, but it's also lovely and amazing. "The Milky Way is like a sheet of paper," says Morris. "It's really flat." He shows images of some of the far-flung family of galaxies, several hundred billion strong—a gallery of galaxies. One has great pink cotton-candy spiral arms (the places where stars are forming), bathed in a day-glo green of fluorescing oxygen; it looks like the galaxy is slowly twirling down a cosmic drain, drowning in stars.

**Interstellar Alchemy—The Life Cycle of Stars**

By the third week, the cosmos opens a new chapter, experiences another kind of change, as another voice is heard, another discipline introduced.

> *Having so many professors is really nice. Everyone has their own specialty, their own style, so it keeps the course interesting. — Cosmos* alum

> *If you have a question, you can always get an answer from someone. If one professor doesn't know, they'll refer you to someone else. That's a rare quality for a class. — Cosmos* alum

Up to this point, geophysicist Kevin McKeegan flatly tells the students, "the universe is boring." Only after the first stars form do we begin to touch the heart of the course, which is about "the evolution of complexity." It's time to look into the alchemy that goes in to making elements. As it turns out, nuclear stability is the exception, not the rule. Most collections of protons and neutrons fall apart, later if not sooner. What determines that a certain form of carbon will stick around long enough to string itself into the long chains necessary to create the molecules involved in the machinery of life? At some level, it's all about $E=mc^2$, how energy transforms into matter and vice versa, why reactions go one way and not the other, seeking the lowest energy state, like water rolling downhill.

Another theme emerges: the influence of invisible forces to mold everything from galaxies to atoms. You can't see the pressure to sink to a lowest energy state any more than you can "see" gravity or natural selection. But the results are palpable. Every element in nature, like every life form, owes its existence to this affinity of energy for minimalization.

Now that the basic ingredients are in hand, the players and the forces, it's possible to see how stars evolve, perhaps even spinning off solar systems like our own in the process, so it's back to astronomy, now for a look at the life cycles of stars.

Marvelous to behold, our star is the exception rather than the rule. Most stars condense out of gas clouds in pairs. Our lone star is an oddity. This is a theme we will hear again and again: How special we are; at the same time, how ordinary.

And another theme still: how systems pull themselves up by their bootstraps in delicately tuned feedback systems. Like an organism, a star is something of a balancing act--held together by its own gravity, pulled toward its center, but at the same time, puffed out by the pressure generated by the nuclear fires inside. Too hot, and it can't hold together; too cold, and it collapses, maybe before it can gobble up enough mass from the surrounding cloud to grow. Like the universe itself, delicately poised between expansion and collapse. On the smallest scales or the largest, in life and in rocks, the cosmos just can't stop looking for equilibrium.

And stars do so much more than just twinkle.

> *There were times in cluster when you just said, oooohhhh! A star isn't just a big ball of gas! It's pulling in things to burn and then it spits things back out—everything that we're made of. Is there anything more beautiful than that? — Cosmos* alum

It's amazing how it all fits together—something that's never far from the instructors' minds. The fusion of proton and proton that fuels the cores of stars is the source of all the energy for life, for the petroleum that powers our society, Morris reminds us. "This p-p chain is the source of the sunlight you'll see when you step outside after this lecture. When you feel the warmth of the sunshine on the back of your neck, this is what you're feeling."

The energy packed into atoms when stars explode—slowly leaking out again in radioactive decay—is what powers, among other things, Earth's magnetic field, moving every needle of every compass. It's possible to hear the atoms disintegrate, one by one, as the loud irregular clicks coming from the Geiger counter McKeegan brings to lecture. Snap, crackle, pop goes the uranium in rocks that came raining from space, atoms that got made in an exploding star billions of years ago and are just now falling apart before our eyes. "Listen," he says, as another pops off. "There's a uranium atom made in a star 5 billion years ago, and it just happened to die right here during this lecture."

The rates that atoms fall apart are well known, so it's possible to use radioactive decay to tell when and possibly where the atoms (and even the rock) were created.

And so it goes, back and forth, the terrestrial to the cosmic. That's how you date rock. How do you date the universe? It's not so different. One way is to listen to the radioactive ticking from elements cooked in the earliest stars; how much is left? "What I'm going to tell you today is mathematically based," Morris warns, as he launches into a lecture on nucleocosmochronology. "Don't get flummoxed if I go by an equation too fast. We'll get back to it later. What I want you to carry away is how we date things."

**Figuring Out What's Worth Knowing: Questions of Depth and Breadth**

It is, as might be imagined, a constant struggle for the faculty to decide how much to teach, how fast, how much detail to go into, what to leave out, how much scientific jargon to use, how much to simplify.

> *Sometimes I feel that we try to tell them too much; we might be better off concentrating on fewer concepts. We realized (last year) that some students don't even understand what gravity is. A lot of students have no clue that the solar system is smaller than the galaxy. This year, we did a much better job on that*— Kevin McKeegan

For a great many students, however, struggles are well worth it, and they appreciated the balance of depth and breadth.

> *There's not much more you could go into without actually doing the math. It presented the material in a way that's clear for people who aren't science majors, but if you want to delve deeper into certain topics, the accessibility of the professors made that absolutely possible. That's not true of the typical GE class. — Cosmos* alum

> *The thing I liked was that it went into enough detail to give you a taste of what's out there and the resources to find out more if you wanted to.— Cosmos* alum

By the time the midterm rolls around, students have remembered nucleocosmochronology as hydroelectrocosmotology, nucleochrondolometry, monocosmochronology. A year after completing the course, few students could remember what nucleocosmochronology meant. But they did remember—and more important, understand—the basic ideas behind how and why atoms disintegrate, and how their slow decay can be used as cosmic clocks. More than anything, they appreciated the chance to participate in a science course to fulfill a GE requirement that wasn't either absurdly narrow, or what they considered to be "dumbed down" for nonscience majors.

> *It was a detailed, serious, class, which I think is great. Mostly, what UCLA offers to fulfill life and physical science requirements is ridiculous. If you take three flippant life sciences classes that are super specific, you don't end up with a strong foundation in life science. You end up with some vague memories of some weird off topic, and you really don't learn anything. You've wasted a year. — Cosmos* alum

> *Most of those GE classes are not going to get you excited about science. They're either so easy, or you don't learn anything from the work you do. — Cosmos* alum

**Who Teaches What: The Cosmos Instructional Team**

Generally, faculty members decide what to teach by playing to their individual strengths and interests, trying as best they can to coordinate with the interests of others. It works, in part, because of the chemistry of this particular group, these particular years. It helps that all instructors are scientists.

> *I think it's natural for this to work in a class where it's all science-based. I may not have known the details of stellar nucleosynthesis, but I knew we were all made of stardust.*

One of the most difficult aspects of assembling such a team, however, is finding graduate students and post-docs willing to take time away from research to participate. TFs are responsible for labs and have to be able to answer questions on matters far outside their own expertise. Even for

professors, the course requires constant learning, re-invention, readjustment. Recyling old lectures from other classes doesn't work. Everything needs to be custom-tailored. The faculty meets every week to coordinate assignments, lectures, field trips, exams, review sessions, grading.

> *This class takes an enormous amount of time. It worked because everyone pulled their weight.*— Biologist Blaire Van Valkenburgh

There is an ongoing debate about whether the students are being spoiled by all this help and attention. Never again in their undergraduate careers, some faculty members argued, will they be held by the hand like this. Needless to say, students appreciate the help. Said one *Cosmos* alum, who switched from English to astrophysics after taking the course: "I like the way the cluster was set up for you to succeed as opposed to some of my other classes."

**The Restless Earth**

By second half of fall quarter, the solar system is in place, and it's time to look inside the Earth, as best we can, anyhow, peering inside the layers like peeling an onion. Once again, we need new tools, new ways of seeing. You can't "see" through rock, so instead you take soundings, watch the sound shadows cast as earthquake waves speed through the soft and solid layers of the planet, bending as they go, differently depending on the type of wave, the consistency of the material.

The crust floats on the "ooey, gooey, magma," says McKeegan, and when continental-sized chunks collide, things upstairs can get shook up. Earthquakes in isolation aren't something to fear. It's the combination of earthquakes and people and structures. Co-coordinator Mike Vendrasco demonstrates how continental plates slip and slide and shake using a bucket of rocks, how buildings on top shake, rattle and roll (or not) depending on how they're configured, constructed. A little vibrating platform with miniature buildings brings home his point: "Earthquakes don't kill people; buildings do."

Vendrasco is an evolutionary biologist who is equally at home in geology, equally familiar with the works of Darwin and Jack Handy. McKeegan's interest in geophysics and the formation of elements puts him at home in the stars as well as deep inside the Earth or interrogating rocks from space. Teaching fellow Tony Friscia from Life Sciences not only understands rocks, but climbs them, leading UCLA outdoor adventures. Morris knows his faults. (This cluster is blessed with rock stars, as we shall see.) Van Valkenburgh, to everyone's surprise, ventures to crack a physics joke at a meeting.

**Living Laboratories**

The cluster is in all respects a team, a point made abundantly clear on the first of several field trips. As the bus reluctantly winds its way up the steep road to Mt. Wilson, Friscia scrambles up some rocks to point out geological fault lines. McKeegan, who lectured on the formation of planetary atmospheres, tells the students to stop and "take a deep breath. It's the only place in the solar system where you can do that." Even our precious atmosphere, the students learn, coats the planet with a very thin skin—no thicker, relatively, than the shellac covering a classroom globe.

At the Mt. Wilson solar telescope, an astronomer guide shows them dark smudges on the surface of the sun--sunspots bigger than Earth where the internal magnetic fields of the star have gotten tangled up, occasionally breaking off to spew showers of electrically charged particles toward Earth.

Morris takes the students to the spot where the speed of light was first accurately measured, and to the telescope where the recession of galaxies was first glimpsed by Hubble—where humanity first learned that the Milky Way was not alone but only one among a host of "island universes."

Astronomy isn't for wimps, students also learn, as they contemplate the rickety chair where Mr. Hubble sat freezing night after freezing night to gather the dribblings of distant star light. It takes courage, or at least the stamina, to stomach long periods of discomfort. It feels like an adventure. For students, it can also feel like a family; this is something they most emphatically did not expect when they came to UCLA.

> *People would say: 'Oh, you're going to UCLA. Your classes are going to be huge. You'll never meet your professors.' And I'd say: 'I don't know what you're talking about.'*
> — *Cosmos* alum

> *The best thing was having the close, personal contact with professors for more than a quarter. You're all freshmen—scared and anxious and excited. And you get to go through it together. It's so much more than just another UCLA course — Cosmos* alum

Field trips serve multiple purposes. On the simplest level, they make the course a friendly experience—a nontrivial result.

> *All the social aspects—the barbeques, the field trips, it made you feel completely free to ask questions. It made you think about the material outside of class. That doesn't happen when you don't get to know a professor. — Cosmos* alum

They also bring home the fact that *COSMOS* is at heart a laboratory course. It's one thing to watch Vendrasco drag buckets of rocks across the lecture hall to mimic the sliding of continental plates, set off earthquakes in miniature buildings. It's quite another, however, to straddle the San Andreas fault—one foot heading toward Mexico while the other makes tracks for San Francisco. Or to see how sedimentary layers laid down in water eons ago got tangled up in knots as the Earth moved, the tortured rocks swirled into almost circular patterns, folded over and over like egg whites.

It's just the stuff for climbing on, as both students and instructors do at the Devil's Punchbowl, a place where one can't help but feel that solid rock, in slow mo, behaves a lot like Silly Putty. It is the day the Earth moved for many of these kids. As one alum described a previous year's fossil-hunting field trip:

> *You go out into the desert and you run around and play in the dirt with professors who know everything there is to know about it. That was really a religious experience. We were picking up these fossils—holding these things in your hand—and you got the feeling you could hear the ocean. This used to be under water! The dawn of time existed for me while I was there. It was like time was abolished, and I was living back in that moment.*

There is present life here, today, too. Snakes, red-tailed hawks, horned owls, all kinds of flora no one can identify. Finding out what professors *don't* know is also, it turns out, an important part of these experiences. Because all instructors come to (almost) all lectures, and attend (almost) all field trips, there's lots of time to share ignorance as well as knowledge—something that helps even the experts to clarify their points and especially helps the students.

> *It felt good to know we weren't the only ones who were struggling. — Cosmos* alum

**Making the Connections**

On the way back to campus, there are Beatles songs and bad food, a movie about giant burrowing carnivorous worms. But mostly, there's a sense that things connect in a way that they often don't during the rest of the students' UCLA education. "I like the way it all hangs together, that it's not separate categories," said one student on the bus, a future filmmaker.

Cluster alums had a much broader basis for comparison:

> *The university system makes it difficult to study anything from more than one point of view, and I thought the cluster did an amazing job of that. It's difficult to find synthesis in your classes. Poli sci classes and history classes and philosophy classes are all narrowly focused; they all have a particular methodology. I can take classes that are all talking about the same thing, but you might never know it. They don't read each other's literature; they don't find a common ground. — Cosmos* alum

> *I wish more professors would try to coordinate like that, so that each course isn't its own, separate core of knowledge, unrelated to the rest, where students have to make their own connections. — Cosmos* alum

> *The very deep and narrow science courses tend to give you all these formulas. We are north campus majors, and we are going to forget all the formulas. This course is a comprehensive view of science, and I carry this with me instead of just some formulas. And as a result, I remember quite a few of the details. — Cosmos* alum

Perhaps surprisingly, science majors, too, felt grateful for the cohesiveness of science as presented in the course.

> *As a science major, it's great. You don't have to wait four quarters to get into things. You don't have to take all the math, all the prerequisites. You don't have to take biology* and *geology* and *physics. You get everything. It puts it all together with areas of science I wouldn't otherwise get into. — Cosmos* alum

Even the most hard core north campus types can't help but see connections as the quarter comes to a close. Science meets politics head on in the issue of global warming, where it's impossible to separate the planet from the people who've come to inhabit it. The Earth's atmospheric blanket absorbs light mostly in visible wavelengths—the ones we see (not a coincidence, of course, but a direct result of evolutionary pressures). That energy, however, is re-radiated from the Earth mainly in the infrared, so that a lot gets absorbed by water vapor and $CO_2$. In effect, the atmosphere behaves like the glass of a greenhouse. This was essential to keep the planet warm when the sun was dim and cool. Now, however, humans are pumping so much heat-absorbing gas into the air that catastrophic consequences may occur—in fact, are probably already occurring.

We not only have an atmosphere; we change it. Some of us drastically. The U.S. is responsible for more than 25 per cent of greenhouse gases released into the atmosphere annually.

As for the would-be arts, philosophy, literature majors, they're invited to ponder perhaps the deepest question of all—certainly not for the first time in their lives, but for the first time in a scientific context. What is our role in the cosmos?

On the one hand, it's clear that the main lesson of the past quarter has been humility. The Earth is not the Center of anything. The Sun is an ordinary star in an ordinary galaxy. We're not even the

main constituent of the universe; the matter we're made of comprises but a tiny percentage of all the matter and energy in the universe. The rest is "dark," unknown.

"We're not special," Morris tells the students, adding: "I'm not telling you this to humiliate you."

On the other hand, we seem to be very special indeed. If quarks were just a little lighter or gravity just a little stronger; if the expansion of the universe were just a little faster (or slower); if the universe contained just a smidge more (or a smidge less) matter, we wouldn't be around to ask these questions. Can this be a coincidence? Perhaps. But it also might be explained by what's known as the Anthropic Principle. In short, in any other universe, life (never mind humans) wouldn't have evolved. Therefore, the universe we inhabit is the only universe we could *possibly* inhabit. That doesn't preclude other universes with different kinds of particles, forces, fundamental laws; it simply means that we don't (and can't) live in them.

> *The anthropic principle was especially interesting to me because of the way it connects to philosophy and math. I was glad to have the scientific perspective to compare with the philosophical and literary perspective. It definitely blurred the lines between philosophy and science. — Cosmos* alum

"Only connect," E.M. Forster wrote. Students got this lesson well. A dance major found that she started thinking differently about movement, forces, space and time: "Now I think, Oh, I know *why* my body does this…"

> *It was amazing how everything started to connect. The way of thinking about things I learned in cluster has made it possible for every single one of my classes to have something to do with each other. They're all interrelated. (For example), literature is about human behavior, and human behavior can be explained by an evolutionary perspective. — Cosmos* alum

**Evolution: The Thread that Runs So True**

So even though winter quarter switches emphasis to the life sciences, the transition is not at all abrupt, because the thread of evolution is never lost; it's only another chapter in the story that's been unfolding since the Big Bang—of how everything came to be and evolved ultimately to the very existence of the students in the classroom.

> *We don't try to do everything. Everything we do is restricted to this thread of evolution.*
> — Mark Morris

It's every bit as difficult, it turns out, to look back at our biological origins as it is to look back at the first moments of the universe; as hard to know what life was up to 4 billion years ago as it is to know what the universe was doing at the dawn of time. So biologists, like physicists, need to develop precisely tailored tools. One of the earliest tools developed was simple classification of like characteristics—a process Vendrasco illustrates with beer bottles of various colors, shapes, ornamentation. Groupings allow scientists to form hypotheses as to why certain characteristics are shared, others not. Why and how are penguins and vultures and turkeys the same? In what ways are they different?

This same idea takes a more sophisticated form in the development of the cladogram—a graphic depiction of relationships and how they may have developed over time, where lineages may have diverged. Where Vendrasco used beer bottles, Friscia in his lecture groups Pokeman creatures, but the point is the same. Grouping is a way to tease out otherwise invisible (or at least obscured)

relationships—as is the use of molecular clocks based on the way changes in DNA mount up over time.

In effect, these tools are not so different from telescopes or microscopes or particle accelerators that allow us to see far beyond our immediate senses, travel to realms remote from human experience. Indeed, on one level, *Cosmos* can be enjoyed primarily as a travelogue—the trip of a lifetime—that takes students to the most exotic corners of space and time. The first quarter transported them to the Big Bang, the insides of stars, the center of the Earth, the edge of the universe and the earliest days of the solar system. The sights of the second quarter are no less exotic, the concepts and players no less strange.

Here we are with Darwin on the *Beagle*, constantly seasick and confused by the island-to-island variations in creatures he saw in the Galapagos: giant lumbering tortoises with variously-shaped necks and shells (Darwin liked to jump on their backs to hitch a ride); finches with a broad range of different beaks; iguanas that swam in the sea, gobbled down seaweed, then sat on hot rocks until the stuff cooked inside their stomachs. Talk about weird science!

Not only is the cast of characters new; so are the forces at work. Instead of gravity and nuclear energy, living things (in addition) are sculpted by random genetic mutation and natural selection. These are the forces behind everything from the interior decorating skills of the bower bird to the nasty bite of the Komodo and group gropes of "she-male" garter snakes. Just as the slowly leaking nuclear energy in rocks sends the continental plates drifting and volcanoes erupting, so evolutionary pressure can alter the shape of a beak, the length of a neck, the size of the brain—make peacock features pretty and skunks smelly. It even sculpts unrelated animals into similar forms. Anteaters of all stripes and species develop long snouts, sticky tongues, similar guts simply because all have evolved (separately) to feed on the same meal.

There were even explosions, almost as dramatic as the Big Bang. Nearly 550 million years ago, life on Earth suddenly and inexplicably burst forth with an outpouring of new species the likes of which had never been seen before or since. One creature had five eyes; another looked so weird with its straight spiky legs (they turned out to be spines) that it was named Hallucigenia. What a strange trip it's been!

> *It's like the Magic School Bus*. — *Cosmos* alum

Conclusions that can be reached from studying the fossils of these creatures and the rock formations in which they're found are bizarre as well. The geological time scales required for evolution took a lot of getting used to, even for Darwin. How do you think about changes that occurred over millions of years when our lifetimes span not even 100? There are stranger conclusions still: Similarities among organisms can be explained because *all living things are descended from a common ancestor!* This is no less hard for students to get their minds around than a universe with no center, or a time before time began. Some—to the profound disappointment of faculty members—never do buy into evolution as fact rather than theory.

> *I have a strong religious background. I didn't believe in evolution and I still don't. But I respect the scientists' beliefs now. I can't just say, no, you're wrong. You can't deny that change is going on. The (continental) plates are moving beneath us. It's a lot easier in high school just to dismiss these things. I came away from the course with the urge to explore why I believe what I believe. I'm grateful for that. If I hadn't been smacked in the face, I wouldn't have felt the need to search further. I could have stayed complacent. — Cosmos* alum

All the pieces begin to come together as it becomes clear that even geography—dumb rocks propelled by the energy of radioactive decay moving around continental plates—has a huge effect on the evolution of species. As mountains rise, islands become isolated from the mainland, currents form barriers in seas, species can no longer interbreed, giving rise to separate lineages. (And let us not forget that the energy of radioactive decay was created during supernova explosions.)

The circling themes give rise to a crescendo of increasing complexity as species bud or branch or go extinct with a proliferation of feathers and fur, scales and claws. "Evolution is a blur," Van Valkenburgh emphasizes. The creation of a new species is not clear-cut. In extreme instances, separate species will even interbreed. Evolution proceeds in fits and starts. There is a sense of racing through the history of the universe and life at full throttle; it's almost too much.

"As the fossil record gets better, things get more confusing," says Van Valkenburgh. "The more you fill in the gaps, the more lines tend to blur. It's exactly what you would expect if you could see evolution in action."

Scientists sift through shards of bone like particle tracks, looking for pieces of the puzzle, trying to arrange them into a coherent picture.

**From Science Anxiety to Science as Adventure**

If not everyone in the class is convinced of the reality of evolution—or switches majors from humanities to science—the course nonetheless has an enormous effect on the way students think about science per se. For the first time, many of these soon-to-be writers and dancers and lawyers and politicians begin to regard science as an appealing adventure—not simply a requirement to get out of the way with as little pain as possible. Further, they regard it as an adventure in which they themselves can actually partake. This, for many, is a revelation.

> *I was nervous about physics, but it was presented in a way that you didn't have to be scared of it. (A big surprise was that physics) is enjoyment reading! You'd never think that about physics! It's amazing! That's very valuable. Who would have thought that physics could be that interesting? It makes you think that anything that's out there could be interesting.*
> — *Cosmos* alum

> *It was like jumping into this pool and finding you can breathe under water* — *Cosmos* alum

> *I can approach science now, instead of saying: 'oh, that's not who I am. I'll leave that to the (nerds). Normally, I'm focused on political news, current events. But now, I read (science related articles) all the time. Something about environmental policy might relate to something Mike had to say about destruction of species.* — *Cosmos* alum

This is science in the making. Most of what is presented in these lectures (like those in fall quarter) wasn't even known 20 years ago. Much is only a few years old. When Morris lectures on the possibility of life beyond Earth, it's clear that this science will only take off during the lifetime of students. For the present, exobiology is a "science with no data," he tells them. "But in our lifetime, there's a good possibility that we'll have data." Just a few years ago, no planets were known orbiting stars beyond earth. Now, says Morris, "every astronomy meeting, there's a new planet. There's been a revolution."

> *I was talking to one student who was reading Kant. I don't think the appreciation of Kant has changed appreciably in the past decades. But we're talking about fundamental facts of nature that just weren't known when we were in school.* — Kevin McKeegan

> *I had the feeling that these current discoveries aren't so far fetched as I had originally thought them to be. I had thought, oh, 'it's so south campus, it's so out there, I can't even think about things like that.' Then we got our hands dirty and actually tried to (understand) this stuff. And even though we couldn't understand it all, it's not so way out there that I can't even contemplate it. — Cosmos alum*

**Creating Communities of Learning**

This carefully orchestrated interplay of life and the cosmos, lecture and first-hand experience, is, as previously stated, enormously time-consuming for faculty, and difficult for departments to justify.

> *There's a general consensus that it's not worth it. Because it doesn't generate a lot of geology majors. It takes people away. We don't have enough people to teach core curriculum as is. And the department doesn't get proper credit. The faculty doesn't get proper credit.*
> — Kevin McKeegan

That said, students both appeared to both understand and appreciate that the commitment.

> *I felt as much work as I put into it, I got back from the faculty, which is pretty unusual at UCLA. The professors made themselves exceptionally available. — Cosmos* alum

One alum particularly enjoys recounting the night she and some fellow students stayed up late working on a lab assignment, and got stuck on one of the questions.

> *This was about midnight. So I said, guys, we are not getting anywhere on this, let's go see if we can post a question on the discussion board, and all I got is a blank screen and I thought maybe the web site was broken. But I tried posting anyway. And I said, if anyone is reading this at midnight, here's my question, if anyone knows what they're talking about, please call us. About an hour later, we get a call. It's this guy. And he says, I think I can probably answer your question for you, and I wondered if you still needed help. And we said, oh yeah! What was your name again? I thought it was some little nerdy guy up in the dorms with nothing to do at 1 in the morning but surf the class web site and answer my stupid question. And he said, this is your professor, Mark Morris. Calls us at one in the morning to help us with our homework! And it absolutely, literally, transformed my perception of education. He stayed on the phone with us for 20 minutes, helping us to do this lab. You can't match that experience. And we tried it again. And this time Mike Vendrasco called us. It was amazing.*

For professors, too, the work had unexpected rewards. McKeegan, for example, found that it affected his own research. After Morris' lecture on the influence of the moon on Earth, and stupendous tides that washed over the planet during earlier epochs, he found himself bringing the idea up in a graduate seminar he was teaching.

> *I thought it was cool that a freshman class was influencing a graduate seminar in a sub discipline. One of the more interesting aspects of participating in this cluster as an instructor is that you're also a student, and I've learned a tremendous amount about fields that I wouldn't necessarily go into. Even if it doesn't result in publication, it stimulates your brain.*
> — Kevin McKeegan

**Cosmos Nation**

Everything changes—including the story of the cosmos itself.

The last few lectures make it clear that change—at least on our little corner of the cosmos—is getting out of control. Human actions are undoing much of the work of evolution in a remarkably short period of time. We wiped out the moa and the mammoth, the do-do and the pygmy hippo, the ground sloth and the passenger pigeon. By the end of this century, we may well have extinguished half the species of plants and animals that ever lived. It's chilling how easy it is to snuff out life. Here today, gone tomorrow. Much of it caused by us. George is lonesome because of whole scale slaughter of giant tortoises by humans. Pandas are almost extinct. The Earth is becoming a lot less rich, and we are squeezing the life out of the planet.

The problem is compounded by the rapidly accelerating pace of change. Adaptation to changing environments takes long periods of time. Relatively speaking, clear cutting of forests, pollution, destruction of ecosystems, happens over night.

Vendrasco shows images reminiscent of the gruesome footage from driver education classes used to instill caution in new drivers. Butchered manatees caught in power boat propellers; bloody remains of slaughtered whales and sharks and elephants and rhinos, killed sometimes for food but more often for dubious purposes having to do with belief in magical powers of horns or fins or testicles. He brings in a steel trap of the kind people use to exterminate "pest" species like coyotes, brings a stick close to it. Suddenly, snap! The stick's chopped in two. "Maybe it's the leg of something that stepped into the trap by mistake," says Vendrasco. "Maybe a California condor. Oops! Oh, you were the last female? Your species is going extinct? Too bad!' "

We are destroying what sustains us—the living planet that provides our air, our food, the medicine to cure ills; even organisms that clean our water. One break in the tightly-linked chain of life can destroy whole webs of interdependent species.

Students will have a chance to explore each of these subjects more deeply—as well as others—during the spring seminars, each a special topic developed by the instructor to reflect his or her interests. This spring, the subjects range from time and energy to history of science, planet-finding, and endangered ecosystems.

> *It's sold as a treat for them, but it's a treat for us. We're all tired by the third quarter. So it's a treat to read what we want to read. You get to take them to cool places. — Tony Friscia.*

The last class is highly emotional, personal, passionate—a reprise of the first lecture only with heart and soul and music. Friscia—a vegetarian—quantifies the high energy costs of eating meat (Ten times as much energy goes into making a burger than a soy shake of nutritional equivalence.) McKeegan rants against wasteful SUVs, and other ways we're throwing away the limited energy reserves of the planet (while polluting it all the more). "Driving an SUV for one year (instead of an average car) is like leaving your refrigerator door open for six years." Van Valkenburgh gives a troubling perspective on our lowering baseline of expectations. We get accustomed to dirty water, polluted air, disappearing species, scarring of the landscape, and it all happens so incrementally, that we don't notice. Morris talks about a Big Bang that is taking place before our eyes in population, a literal explosion that adds the population of San Francisco to our planet ever three days. Every 20 minutes, the world adds another 2800 human lives, but loses one or more entire species of animal or plant life—at least 27,000 species per year. "For every two people standing in line in front of you now, there will be three in 2050."

Vendrasco decides that the cluster should end as it began, with a bang, so he puts on a sound and light show, belting out "The Sun is a Mass of Incandescent Gas" (from the song "Why the Sun Shines"), accompanying himself on accordion, with Morris on electric guitar, and a former UCLA paleontology grad student on drums.

There is a prolonged standing ovation. Later in the day, an anonymous e mail comes to the faculty, reproduced here verbatim.

> *Today's lecture was so beautiful. It validated my belief that you are all wonderful people that have surpassed the call of duty to us--the future. Values and Passions came out today from each instructor and they were so moving to me. Each of you offered a perspective into your lives that is so rare to encounter outside intimate relationships. Whether it was a lesson of life, key issues of the present and future, deep questions to consider or just some awesome entertaining fun, it was all very thoughtful and eye-opening.*
>
> *I want to say to you all, you have made a difference and that I'll carry a piece of your souls throughout my life. I won't ever look at a Big Mac the same way. I won't buy a SUV. I will always picture Mike with an accordion. I'll definitely consider adoption. I won't forget there is Beauty everywhere, even in science. I will question my path often and I will follow my heart.*
>
> *Thank you. I can't say enough. I will truly miss coming to this class.*
>
> *some student in your cosmos class,*
> *some being in the universe*

## SECTION SEVEN
## KEY ACHIEVEMENTS AND ONGOING CHALLENGES

Section Seven summarizes the key achievements of the Freshman Cluster Program and discusses the ongoing challenges that the administrative team must address to improve the program.

### Key Achievements

Over the past five years, a diverse group of more than 3500 UCLA freshmen has completed the cluster experience. The yearlong experience culminates in the spring capstone seminar—196 of which have been offered since the beginning of the program. The ten clusters offered have been taught by 73 of UCLA's most distinguished faculty members and 102 of the university's most qualified GSIs, drawn from all four of the College divisions and seven of UCLA's 11 professional schools (Dentistry, Education & Information Studies, Engineering & Applied Sciences, Law, Medicine, Public Health, Public Policy & Social Research, and Theater, Film & Television). The evidence of the previous sections is that the Freshman Cluster Program has become a vital part of the undergraduate experience at UCLA – valued by undergraduates, graduate students, faculty and staff.

The Freshman Cluster Program established four programmatic goals, introduced in the first section of this report. This section restates these goals and highlights key achievements to date.

#### *Interdisciplinary Teaching and Learning*

**To offer yearlong courses that challenge freshmen to understand complex and controversial issues from select disciplinary perspectives.**

- Most cluster faculty teams collaborated effectively to develop courses that enabled freshmen to comprehend complex interdisciplinary material. Faculty found cluster teaching to be very demanding, yet rewarding. The experience inspired many to learn from their colleagues, improve their teaching, broaden their thinking and consider new approaches to their scholarship.
- GSIs played a vital role in course planning and implementation. They reported growing intellectually while helping freshmen understand connections between the disciplinary perspectives of cluster faculty. In addition, GSIs built their own teaching repertoires as they observed the diverse interdisciplinary teaching approaches modeled by experienced faculty in the cluster classrooms.
- Nearly 90% of cluster students reported that both the interdisciplinary themes and the purpose of the clusters were clear. Moreover, cluster students indicated that they found the courses challenging and intellectually stimulating.

#### *Foundational Academic Skills*

**To strengthen skills—critical thinking, problem solving, rhetorical effectiveness, creative expression—that give freshmen the tools necessary for success in a research university environment and in a rapidly changing world.**

- Faculty worked with GSIs, consultants from Writing Programs, and College librarians to design assignments to strengthen a variety of academic skills in a progressive manner across fall and winter quarters. These assignments promoted critical thinking, information literacy, problem solving and rhetorical effectiveness while introducing students to the

methods specific to select disciplines and incorporating such activities as lab experiences, service learning, and field trips.

- GSIs worked directly with students in weekly two-hour discussion sections to develop the skills embedded in course assignments. They guided students in discussion and debate, and, in some cases, hands-on laboratory experiences; additionally, as qualified writing instructors, they engaged students in intensive writing.
- Cluster GSIs who worked with students all year were impressed with their students' developing ability to think in a critical and interdisciplinary manner. Over half of the students reported a strengthening of their writing, analytical, and library skills.

***Capstone Spring Seminars***

**To offer a capstone seminar experience that challenges freshmen to expand on the knowledge and skills acquired during the first two quarters of the cluster and to complete a substantive project of their own.**

- Cluster students were highly satisfied with the seminar experience. They gave the seminar courses high ratings (usually near or above 8.0 on a nine-point scale) on their course evaluation forms and reported that the seminars enabled them to further investigate course content and relate it back to what was learned over the two previous quarters.
- GSIs taught 60% of the spring seminars. Despite their many hours of classroom teaching experience, most GSIs had never designed their own courses from start to finish, and this was a key incentive to participate in the cluster program. For many GSIs, the spring seminar was the highlight of their cluster teaching experience and helped prepare them for their academic careers.
- UCLA faculty members taught 40% of the spring seminars. Most faculty who taught seminars felt their students possessed an "intellectual sophistication" that grew out of their having had the preceding two quarters of lectures upon which to draw.

***Yearlong Learning Communities***

**To create a community of learners among cluster faculty, GSIs, and freshmen, through yearlong academic and social activities occurring both in and out of the classroom.**

- Faculty took seriously the charge to create a community of learners through a variety of academic and social activities planned throughout the year. They organized social events, field trips, film nights, guest lectures, and other experiences that invited interaction beyond the lecture hall. Faculty also valued collaborating with colleagues and GSIs from a variety of departments in the shared intellectual enterprise of the cluster.
- GSIs enjoyed close camaraderie not only with cluster faculty from diverse disciplines, but also with peers (as they participated in training workshops, planning sessions, and informal support networks) and with freshmen students, who were very often in their classes for the entire year.
- Students valued the sense of community they felt in the clusters, both with one another and with their instructors. The yearlong structure of the course and the range of academic and social activities offered strengthened these relationships.

## Ongoing Challenges

Although the cluster program has clearly made significant progress toward meeting its goals, there are nevertheless issues that must be addressed if the program is to continue to thrive. With that in mind, this section concludes with a discussion of the following challenges: the ongoing need to engage faculty members, the importance of supporting graduate student instructors, the direction of future assessment efforts, and the question of program expansion. These challenges will guide the efforts of the cluster administrative team to improve the program.

### *Engaging Faculty*

Maintaining continued faculty interest in and engagement with the freshman cluster program is essential to the health of the program. Recognizing this, the cluster program secured external funds to support a two-year initiative aimed at engaging UCLA faculty in the development of freshman clusters. More than 160 UCLA scholar-teachers participated in 14 cluster affinity groups. From these efforts, eight cluster courses were developed. Seven of these were offered between 1998 and 2003, and one will be offered in 2003-04. The administrative team will continue to develop affinity groups and will pay particular attention to including faculty from departments that are not represented in the current cluster program, as well as faculty new to UCLA.

In general, faculty found cluster teaching to be difficult and time consuming. To lessen the demands on faculty time, the cluster administrative team will continue to help faculty benefit from the past experiences of cluster instructional teams by producing a best practices manual of cluster teaching. Faculty will also receive copies of this self-review report that highlight issues in course development and team building. These written materials will be supplemented by ongoing support, such as workshops in which faculty can exchange ideas about cluster teaching. Finally, the cluster administrative team will continue to use academic administrators as instructional coordinators, where appropriate.

### *Supporting Graduate Student Instructors*

Graduate student instructors are vital members of the cluster instructional teams. The workload connected to their cluster involvement is significant. In response to these workload issues, cluster administrators will seek to hire a Teaching Assistant Consultant (TAC) and Technology Teaching Assistant Consultant (TTAC) through OID. The cluster staff will also develop and make available a database containing syllabi and other course materials from previous cluster courses, including spring seminars. The possibility of utilizing undergraduate assistants to alleviate some of the administrative workload that often accompanies GSIs' other responsibilities will also be explored. Where desirable, the cluster administrative staff will work with the teaching team to develop the role of the "teaching fellow coordinator," who, with a reduced teaching load, can assume additional logistical responsibilities and ease the burden of other GSIs.

### *Ongoing Assessment*

The cluster administrative team has created an assessment process that has surveyed more than 2000 undergraduate students and engaged over 130 GSIs and faculty members in interviews and focus groups. From this research, we know that the cluster experience is positive for faculty, graduate student instructors, and students alike. All three groups reported benefiting in a variety of ways from cluster participation. To date, however, evidence of benefits to students has taken the form of self-reports and observations by GSIs and faculty at the end of the cluster experience. Thus, we are limited in our understanding of just how students experience the cluster program as they make their way through the academic year, and what the longer term benefits of cluster participation might be as they complete their undergraduate programs at UCLA.

More comprehensive feedback obtained from students as they progress through the yearlong experience will inform efforts to decrease cluster attrition rates and shed light on how best to assist all cluster students as they adjust to the rigorous coursework. To obtain this feedback, the assessment team will revisit and possibly revise current evaluation instruments, including internal surveys and EIP forms. The cluster administrative team will also engage in efforts to document students' growth in writing and analytical thinking over the course of the year, including, for instance, creating portfolios of student writing. Finally, because we currently know relatively little about how the cluster experience may affect students later in their college careers, the assessment team will employ longitudinal strategies to follow up with former cluster students as they near completion of their undergraduate degrees.

### *Expanding the Program*

Over the last five years, the annual enrollment in clusters has grown to nearly 1200 freshmen – about 30% of UCLA's freshman class. Despite this increase in size, the original target of serving 40% of the UCLA freshman class remains a significant challenge. UCLA's freshman class size is expected to increase to 4500 students in the next few years, and to accommodate 40% of this population, the program would need to teach approximately 1800 students in clusters annually. To meet this goal, the number of cluster courses offered can be kept steady, with increased average enrollments. Alternatively, the average course enrollment can remain steady while the number of cluster courses grows. Each option has implications for cost and instruction that must be carefully weighed. Moreover, the decision about how to reach the 40% target must be considered in light of the cluster program's fixed budget of 1.8 million dollars, as well as the challenges of the university's pending fiscal crisis and uncertainty. As these options are considered, the cluster program will also seek additional avenues of growth – for example, through cost-sharing partnerships with those departments and interdepartmental programs whose faculty and curricula are closely linked to the subject matter of the clusters.

### Concluding Comment

The Freshman Cluster Program is an ambitious and innovative program that has transformed a large part of UCLA's general education curriculum. The "pilot" program, initiated in 1997-98, has been successful – far beyond most expectations. The program has achieved many key objectives in offering yearlong interdisciplinary courses that excite and engage freshman students and in attracting and supporting the graduate student instructors and faculty who have stepped forward to design and implement cluster courses. Through attention to ongoing challenges, the program can continue to flourish.

# APPENDIX A

## FACULTY LISTED BY CLUSTER
## 1998-2003

**Faculty Listed by Cluster**
**1998-2003**

### *The Global Environment: A Multidisciplinary Perspective (1998-03)*

Christopher Brown ~ Department of Geography (Spring Seminar 2001)
Randall Crane ~ Department of Urban Planning (1999-01; 2002-03)
Nicholas Entrikin ~ Department of Geography (1998-2001)
Graham Forrester ~ Department of Organismic Biology, Ecology, and Evolution (1998-99)
T.C. Harmon ~ Department of Civil & Environmental Engineering (Spring Seminar 2002)
Gregor Hodgson ~ Institute of the Environment (IoE) (2000-03)
Jeffrey Lew ~ Department of Atmospheric Sciences (1998-00; 2001-02)
T. R. Longcore ~ Institute of the Environment (Spring Seminar 2003)
Ted Porter ~ Department of History (1998-00)
Keith Stolzenbach ~ Department of Civil & Environmental Engineering (*Coordinator* 1998-02)
Richard Turco ~ Department of Atmospheric Science; Director-IoE (2000-01; 2002-03)
Richard Vance ~ Department of Organismic Biology, Ecology, and Evolution (1999-01; 2002-03)

### *Interracial Dynamics in American Culture Society and Literature (1998-03)*

Karen Brodkin ~ Department of Anthropology (2000-02)
Cheryl Harris ~ School of Law (1999-00)
King Kok Cheung ~ Department of English/Asian American Studies (*Coordinator* 1998-00)
Kimberly Crenshaw ~ School of Law (1998-99)
Jeffrey Decker ~ Cluster Instructional Coordinator (1999-03)
Robert Hill ~ Department of History/African American Studies (2002-03)
Vilma Ortiz ~ Department of Sociology/Chicana/o Studies (2002-03)
Rafael Perez-Torres ~ Department of English/Chicana/o Studies (*Coordinator* 2000-02)
Mark Sawyer ~ Department of Political Science/African American Studies (2000-02)
Brenda Stevenson ~ Chair, Department of History; African American Studies (1999-00)
Richard Yarborough ~ Department of English/African American Studies (1998-99)
Henry Yu ~ Department of History/Asian American Studies (1998-00)
Min Zhou ~ Department of Sociology/Asian American Studies (2002-03)

### *The History of Modern Thought (1998-03)*

Joyce Appleby ~ Department of History (*Coordinator* 1999-01)
G. Balakrishnan ~ Department of History (Spring Seminar 1999)
Rogers Brubaker ~ Department of Sociology (1998-99; 2000-01; 2002-03)
Margaret Jacob ~ Department of History (1999-02)
Douglas Kellner ~ Department of Education (2001-02)
M. Gregory Kendrick ~ Cluster Program Coordinator (Spring Seminar 1999-03)
Michael Mann ~ Department of Sociology (1999-03)
Jeffrey Prager ~ Department of Sociology (1998-99; *Coordinator* 2001-03)
Ivan Szelenyi ~ Department of Sociology (*Coordinator* 1998-99)
Samuel Weber ~ Department of English (1998-99)
Norton Wise ~ Department of History (2002-03)
Robert Wohl ~ Department of History (1999-01)

### *Towards a World Economy – The Perils and Promise of Globalization (2001-03)*

Ali Behdad ~ Department of English (2002-03)
Rebecca Emigh ~ Department of Sociology (2001-02)
Geoffrey Garrett ~ Department of Political Science; Vice Provost-International Institute (2002-03)
Sule Ozler ~ Department of Economics (*Coordinator* 2001-03)
David Rigby ~ Department of Geography (2001-03)
Richard Von Glahn ~ Department of History (2001-02)

***Work, Labor, and Social Justice in the U.S. (2002-03)***

Ruth Milkman ~ Department of Sociology (2002-03)
Geraldine Moyle ~ Writing Programs (2002-03)
Abel Valenzuela ~ Cesar Chavez Center for Chicana/o Studies (*Coordinator* 2002-03)
Kent Wong ~ Institute for Industrial Relations (2002-03)

***Perception and Illusion: Cognitive Psychology, Literature and Art (2000-01)***

Frederick Burwick ~ Department of English (*Coordinator* 2000-01)
N. Kathryn Hayles ~ Department of English (Spring Seminar 2001)
John Hummel ~ Department of Psychology (2000-01)
Phil Kellman ~ Department of Psychology (2000-01)
Dahlia Zaidel ~ Department of Psychology (Spring Seminar 2001)

***The United States, 1963-1974: Politics, Society, and Culture (2000-02)***

Joel Aberbach ~ Department of Political Science (2000-02)
Jeffrey Decker ~ Cluster Instructional Coordinator **(**2000-02)
Janice Reiff ~ Department of History (2000-02)
Robert Watson ~ Department of English (*Coordinator* 2000-02)

***Evolution of the Cosmos and Life (1998-02)***

K.C. Cole ~ College of Letters and Science (2000-03)
Jon Davidson ~ Department of Earth & Space Science (*Coordinator* 1998-99)
T. Mark Harrison ~ Department of Earth & Space Science (1998-00)
David Jackson ~ Department of Earth & Space Science (2000-01)
Matthew Malkin ~ Department of Physics & Astronomy (1998-99)
Kevin McKeegan ~ Department of Earth & Space Science (2001-03)
Stephen Mojzsis ~ Department of Earth & Space Science (1999-00)
Mark Morris ~ Department of Physics & Astronomy (*Coordinator* 1999-2003)
William Schopf ~ Department of Earth & Space Science (1998-99)
Blaire Van Valkenburgh ~ Chair, Department of Organismic Biology, Ecology, and Evolution (2000-03)
Mike Vendrasco ~ Department of Earth & Space Science ***(1999-00;* Co-Coordinator *2001-03)***

***Biotechnology and Society (2002-03)***

Sally Gibbons ~ Cluster Instructional Coordinator (*Coordinator* 2002-03)
Ichiro Nishimura ~ School of Dentistry (Spring Seminar 2003)
L. Jean Perry ~ Department of Molecular, Cell and Developmental Biology (2002-03)
Ralph Robinson ~ Department of Microbiology, Immunology, and Molecular Genetics (2002-03)

***Frontiers in Human Aging: Biomedical, Social, and Political Perspectives (2001-03)***

JoAnn Damron-Rodriguez ~ Department of Social Welfare (*Coordinator* 2001-03)
Rita Effros ~ Department of Pathology & Laboratory Medicine (2001-03)
Lene Levy-Storms ~ Department of Geriatrics (2001-03)

# APPENDIX B

## CLUSTER ASSESSMENT INSTRUMENTS

- Year-End Survey For Cluster Freshmen
- GSI Focus Group Script – Spring 2001
- GSI Interview Protocol – Winter 2003
- Faculty Interview Protocol

**General Education Questionnaire 2001-2002**

# GE Cluster 20ABC

**In addition to your regular course evaluation, we are asking that you fill out this survey which asks you to reflect on your cluster course for the entire 2001-02 Academic Year.** On average, it should take 15 minutes of your time to complete this questionnaire.

Your answers to this survey are confidential. The information you provide will be combined with responses from other participants and reported in the form of summary statistics and group totals. Although we hope you complete this survey, your participation is voluntary and you may skip any questions you would prefer not to answer.

If you have any questions about this survey, please contact Dr. Arianne Walker, at 310-794-4098. Thank you very much for your participation in this important survey.

1. Student ID# __ __ __- __ __ __-__ __ __

2. Why did you *originally* enroll in the cluster course? *(Circle one in each row)*

| | Not Applicable | Somewhat Important | Very Important | Not Important |
|---|---|---|---|---|
| a. I thought it would be interesting | NI | SI | VI | N/A |
| b. I wanted Honors credit for this course | NI | SI | VI | N/A |
| c. I thought I would do well in this course | NI | SI | VI | N/A |
| d. I liked the three-quarter sequence of courses | NI | SI | VI | N/A |
| e. I wanted the General Education (GE) credit for this course | NI | SI | VI | N/A |
| f. Other (specify)_____ | NI | SI | VI | N/A |

3. Please rate the following cluster series components. *(Circle one in each row)*

| | Disagree Strongly | Disagree Somewhat | Neutral | Agree Somewhat | Agree Strongly |
|---|---|---|---|---|---|
| a. The lectures by different faculty are well connected to one another | DS | DSW | N | ASW | AS |
| b. The spring quarter course content builds on the fall and winter quarter's course content | DS | DSW | N | ASW | AS |
| c. The major themes that underlie this course are clear to me | DS | DSW | N | ASW | AS |
| d. The purpose of this course is clear to me | DS | DSW | N | ASW | AS |
| e. The course is well-organized | DS | DSW | N | ASW | AS |
| f. The cluster course is not what I expected | DS | DSW | N | ASW | AS |
| g. If I had it to do over again, I would enroll in this cluster course | DS | DSW | N | ASW | AS |

4. Compared to other courses you took during your first year, how would you characterize the cluster series identified on the cover sheet of this questionnaire? *(Circle one in each row)*

| | Much less | Somewhat less | About the same | Somewhat more | Much more |
|---|---|---|---|---|---|
| a. Amount of work required | ML | SL | AS | SM | MM |
| b. Time you devoted to the course | ML | SL | AS | SM | MM |
| c. Difficulty understanding course content | ML | SL | AS | SM | MM |
| d. Sense of community among the students in the course | ML | SL | AS | SM | MM |
| e. Contact with professor(s) | ML | SL | AS | SM | MM |
| f. Contact with teaching assistant(s) | ML | SL | AS | SM | MM |
| g. Amount you learned | ML | SL | AS | SM | MM |
| h. Degree to which instructors challenged you to think critically | ML | SL | AS | SM | MM |
| i. Intellectual stimulation | ML | SL | AS | SM | MM |
| j. Overall value of the course | ML | SL | AS | SM | MM |
| k. Your level of enthusiasm about the course | ML | SL | AS | SM | MM |

l. Your level of involvement/engagement in the course ..... ML SL AS SM MM

*Please continue on the back.*

5. How did taking this cluster affect your skills, knowledge, and interests? For each item below, please indicate whether your skills or interests are weaker, unchanged, or stronger as a result of taking this cluster series. *(Circle one in each row)*

| | Much Weaker | Somewhat Weaker | No Impact | Somewhat Stronger | Much Stronger |
|---|---|---|---|---|---|
| a. Writing skills | MW | SW | NI | SS | MS |
| b. Analytic skills | MW | SW | NI | SS | MS |
| c. Library research skills | MW | SW | NI | SS | MS |

As part of this cluster, *how often* did you engage in the following activities during the cluster series? *(Circle one in each row)*

| | 1-5 Never | 6-10 times | 11 or more times | 1- times |
|---|---|---|---|---|
| a. Participate in class discussions during lecture | N | 1-5 | 6-10 | 11+ |
| b. Participate in class discussions during discussion section or lab | N | 1-5 | 6-10 | 11+ |
| c. Attend a professor's office hours in person | N | 1-5 | 6-10 | 11+ |
| d. Attend a teaching assistant's office hours in person | N | 1-5 | 6-10 | 11+ |
| e. Talk with students outside of class about the course | N | 1-5 | 6-10 | 11+ |
| f. Study with other students enrolled in the course | N | 1-5 | 6-10 | 11+ |
| g. Write a paper of 1 to 5 pages in length | N | 1-5 | 6-10 | 11+ |
| h. Write a paper more than 5 pages in length | N | 1-5 | 6-10 | 11+ |
| i. Carry out course assignments in small groups or teams | N | 1-5 | 6-10 | 11+ |
| j. Re-write a paper after receiving comments or feedback from a TA or professor | N | 1-5 | 6-10 | 11+ |
| k. Go to the library to find materials related to the course (*not* reserve reading) | N | 1-5 | 6-10 | 11+ |
| l. Write a paper that involved library research | N | 1-5 | 6-10 | 11+ |
| m. Participate in activities in the residence halls related to the course | N | 1-5 | 6-10 | 11+ |
| n. Exchange e-mail with the professor (either one-on-one or as part of a group) | | N | 1-5 | 6-10 | 11+ |
| o. Exchange e-mail with a teaching assistant (either one-on-one or as part of a group) | N | 1-5 | 6-10 | 11+ |
| p. Exchange e-mail with other students in the course (either one-on-one or as part of a group) | N | 1-5 | 6-10 | 11+ |
| q. Use the World Wide Web or Internet as part of a course assignment or project | N | 1-5 | 6-10 | 11+ |
| r. Conduct laboratory experiments/exercises | N | 1-5 | 6-10 | 11+ |
| s. Apply mathematical concepts or formulas in problem-solving | N | 1-5 | 6-10 | 11+ |

6. Looking back on the academic year, what was the best aspect of the cluster series?

7. In which of the following areas do you plan to major?
   - ☐ Humanities or Social Sciences
   - ☐ Life or Physical Sciences
   - ☐ Other, please specify_____
   - ☐ Don't know/not sure

*Thank you very much.*

# GSI Focus Group Script – Spring 2001
# Focus Group Questions

I. Introduction: (5 minutes)

*A. Introduce Ourselves*

*B. Introduce Study*
As you know UCLA is revising its General Education program and the cluster courses are an integral part of this revision.

We want to find out how well the clusters are working from the TAs' points of view. Specifically, we'd like to focus on four subjects:

1. What it means to be a TA in a GE Cluster;
2. Interdisciplinary and team-taught approaches to teaching first-year courses;
3. Your students' experiences; and
4. The seminar experience.

We're going to ask you some questions today on each topic and discuss them as they relate to your cluster course. We hope to have an open discussion about these things; your opinions, comments and experiences - good, bad, or neutral - are very important to us. There are no wrong answers. We want to hear everything you have to say.

Our plan is take what we learn from you today and use it to design better GE courses. This session should last about an hour and a half.

Before we begin, though, I'd like to lie out some ground rules:

1) We will be writing up an assessment report at the end of the year and the results of this focus group will be included. However, none of your names, nor any identifying information, will be associated with your comments in the report. Your names will not be reported at all, however items such as your department, gender, and cluster will be reported.

2) As I said before, there are no right or wrong answers. There may be differences of opinion, and in fact, we're hoping there will be. Please share any comments with us and don't worry if they're not what your neighbors are saying. Conversely, if you agree with your neighbor, we want to know that too.

3) Finally, speak up clearly and talk one at a time. We're recording this session because we don't want to miss any of your comments, but the recording has a tendency to get garbled if more than one person speaks at once or if you speak too quietly.

Are there any questions? Then we'll begin. (Start tape recorder.)

II. Discussion Questions:

*A. Name and Introductions* (10 minutes)

Although you all know each other, let's quickly refresh everyone's memory (and get names associated with voices for the tape recorder) by going around the room and introducing ourselves. Say your first name clearly so we can get your name associated with your voice on the recorder, and then tell us:

- how many years you have been a graduate student at UCLA,
- what department you are associated with, and
- why you chose to teach in this course. [This gets at incentives.]

*B. What it means to be a TA in a GE Cluster course*

[Purpose of the question: To understand how TA's feel that this program impacts their own progress toward degree completion and how it might be made more useful to them as students. Issues of workload.]

I'd like each of you to describe your GE Cluster experiences, thus far, in terms of the differences and similarities to other teaching experiences as well as any insights you might have about the course itself.

Probes:

- How is teaching in this course different from teaching in other courses?
- Describe what makes it different. The level of students? The multiple faculty? The administrative structure?
- Compared to other GE courses you've taught, does the cluster require more time, the same amount of time, or less time? Why? Explain. [workload]
- How did your cluster involvement impact your other responsibilities, such as your dissertation?
- Describe your involvement in creating this course. Where should you have had more input? Less?
- If you had to choose again, would you choose to teach in this course? Why?
- If no, what might change your mind?
- How has the interdisciplinary nature of the course helped your own thinking about scholarly work? [intell. Develop.]
- What sort of outside recognition have you received due to your participation in the cluster?

*C. Interdisciplinary and team-taught approaches to teaching first-year courses*

[Purpose of the Question: To discern whether TAs feel that this new approach is positive or negative. How is it working with multiple faculty on one course? Do they feel their voices are being heard? What are the barriers in these courses? What lessons have they learned?]

Now I'd like to turn to your experiences with the faculty.

Probes:

- Describe your relationship with faculty. (Compare to other courses you've TAed or taught.) [community]
- What would make the TA-faculty relationship better?
- How does working with multiple faculty help or hinder your experience?
- Describe the sort of preparation you go through to get ready for section.
- How well does the course bring together the multiple disciplines?
- How coherent was the course?
- Were the different disciplines synthesized well?
- What could be done better?
- What lessons have you learned?
- How did the interdisciplinary, team-taught structure influence your experience?
- Are there any "best practices" you'd like to share? What classroom pedagogies worked best?

*D. Your students' experiences*

[The purpose of the Question: To understand how the TA's viewed their students' experiences, growth, and comprehension of the course.]

Let's talk a little bit about your students' experiences during the first two quarters.

Probes:

- How effective was the cluster in conveying the major themes and concepts?
- What did your students learn?
- How coherent were the goals/themes for your students?
- How did your students feel about the cluster community?
- Compare students' intellectual development in the clusters to other lower division students you've taught.
- Were your students excited about their intellectual experiences? Social experiences?

*E. The seminar experience*

[The purpose of the Question: To understand the connection of the seminars to the first two quarters. To determine how well first-year students take to the seminar situation. Lessons learned.]

Finally, I'd like to turn to the seminar experience.

Probes:

- How well do your seminars work with first-year students? How are seminars with freshmen different from seminars with more advanced students?
- How did the first two quarters impact your seminars? In creation of the seminar? In discussion during the seminar?
- How has the seminar experience benefited you personally? Professionally?
- Any advice for future cluster instructors?

As a final question – were your expectations of the cluster experience fulfilled?

*F. Closing*

1) In the few minutes we have left, I'd like you to tell me anything you want about the course and your experiences.

2) OK, that's it. We're out of time. I'd like to thank you for coming and for being so candid. Your comments will be very helpful to us.

If you'd like to talk to us later you know how to reach me.

Are there any last questions?

Have a nice day.

[End recording]

**G.E. CLUSTER EVALUATION**
**GRADUATE STUDENT INSTRUCTORS**
**INTERVIEW PROTOCOL**
**Winter 2003**

As you know, General Education Cluster Program is conducting a self review. You've probably participated in a TA focus group in the past, and those have been incredibly helpful in helping us understand the overall cluster experience. At this point we're interested in learning more about the seminar piece in particular, and that's what I'd like to talk with you about today.

1. **First, I'd like to ask you about your background.**
   **Probe(s):**
   - How many years have you been a graduate student at UCLA?
   - What department are you in?
   - Which cluster courses have you worked with, when, and in what capacity?
2. **How would you describe your experience with the cluster program (so far)?**
   **Probe(s):**
   - What, if anything, was particularly good about it?
   - What, if anything, was particularly bad about it?
3. **What was your experience with the seminar component of the cluster program?**
   **Probe(s):**
   - What, if anything, was particularly good about it?
   - What, if anything, was particularly bad about it?
   - Overall, was teaching a cluster seminar a positive experience? Why or why not?
4. **How was teaching a cluster seminar different from other teaching experiences you've had?**
   - Prior to working with the cluster program, had you designed your own course before?
   - Prior to working with the cluster program, had you taught undergraduates before? If yes, had you taught freshmen before?
   - Did it make a difference that your seminar followed two quarters of lectures? Why or why not?
   - How familiar were you with the seminar model before you taught this course?
5. **How did you go about designing your seminar course?**
   - When did you begin conceptualizing your seminar?
   - What resources did you draw on to make decisions about your seminar?
   - How did you use the fall and winter lectures in your seminar design, if at all?
6. **How closely connected to the overall cluster program was your seminar?**
   - Did you see your seminar as a continuation of the first two quarters, as a separate course, or as a combination of the two?
   - Did you strive to make your seminar interdisciplinary? Why or why not?
   - If you did strive for an interdisciplinary seminar, what did you do to achieve this? Were you successful?
   - If not already answered, how did you use the fall and winter lecture material to inform the seminar design, if at all?
7. **Did you feel you had sufficient preparation and support in order to <u>design</u> your seminar?**
   - Were the workshops offered by the cluster program helpful in any way? How so?
   - Are there other types of support that you think would have been useful? Please describe them.
8. **Did you feel you had sufficient preparation and support in order to <u>teach</u> your seminar?**
   - Were the workshops offered by the cluster program helpful in any way? How so?
   - Are there other types of support that you think would have been useful in helping you carry out the course? Please describe them.
9. **What impact were you hoping your seminar would have on your students? Do you think you achieved that goal?**
   - How well do you think your seminar worked for your students? How can you tell?
   - How do you know when you've had a "successful" seminar?
10. **What impact did teaching the seminar have on you?**

- Did the seminar experience have an effect on you personally? How so?
- Did the seminar experience have an effect on your research? How so?
- Did the seminar experience have an effect on your teaching? How so?

11. **Are there any issues related to the <u>seminars</u> – good or bad – that we haven't covered yet but you'd like to discuss?**
12. **Do you have any advice for future seminar instructors?**
13. **Do you have a copy of your seminar syllabus that you could share with me?**

Faculty Interview Protocol (One Hour)
2000-03

**Tell us your cluster story.**

**How first came to decide to participate**
**The planning process (affinity groups, etc)**
**Teaching the course**
**How feel about it now**

**Probes:**
**Incentives:**
Attractions of the cluster model

**Course Coherence:**
Disciplinary integration (content)--Themes
Pedagogical integration
Teaching team

**Workload & Productivity:**
Compared to other courses
Time
Impact on other work responsibilities

**Support**
Departmental
Administrative

**Intellectual Development & Enthusiasm**
What did you learn?
Intellectual impact on other aspects of work (research and teaching)
Would you teach a cluster course again?

**Community**
Team building with peers and grad students
Fostering community in students
Obstacles to team-building

**Observations of undergraduate students**
What did you want students to learn?
Development of skills
Observable changes in students

**TAs**
Selection

**Additional Observations**
Recommendations?
Is there anything you would like to add?