Report of the Academic Senate Online Graduate Degrees Working Group
August 24, 2010

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INTRODUCTION AND CHARGE

The Berkeley Division of the Academic Senate has approved approximately a dozen fully online courses, but has never approved or even considered a fully online degree. Given the absence of guidelines from the systemwide Academic Senate or local administration, and the imminent submission of two proposals for online graduate degrees, the working group was charged with developing guiding principles for the Senate to consider when reviewing proposals for online degrees. The working group was asked to focus on online professional graduate degrees, with the expectation that any recommendations developed will be revisited if and when other types of online degrees are proposed. The charge to the working group consisted of the following seven items.

1) Recommendations regarding information proposers should include in a proposal for an online degree, additional to that required for proposals for new degrees delivered using conventional instructional methods. Possible items that might be requested include, but are not restricted to:
   - Materials and technological equipment that students are expected to provide.
   - Explicit information about any required on-campus experiences.
   - Any special resources required for mounting effective online graduate degrees. Specifically, what mechanism could be used to obtain feedback from students about the efficacy of the program, or what metrics will be used to evaluate the best pedagogic practices?
   - Measures to be taken to prevent cheating in online courses or projects.

2) Criteria for the review and approval of online graduate degree programs.
   - These recommendations should be guided by existing documents governing review and approval of graduate and professional degrees as well as new research on the efficacy of online instruction.
   - Recommendations about assessing the outcomes of prerequisite courses that have been taken online.
   - Recommendations about whether there should be a time limit for satisfying the degree requirements, to ensure that graduates have up-to-date knowledge.
   - Recommendations about how the residency requirement should be met.
   - Recommendations about the capstone experience.

3) Recommendations about new procedures (if any) needed for the review of online graduate degree proposals.
   - Should any additional Senate committees be involved in the review and approval?

4) Recommendations for data that should be collected by online degree programs that Senate committees could use when reviewing departments during the normal cycle, as well as recommendations for the off-cycle review of online programs.

5) Recommendations for data that should be collected by online degree programs that can guide the development and review of future online degree programs (lessons learned).

6) Recommendations regarding teaching service credit for online instruction and how teaching efficacy will be evaluated in an online context.

7) Identify next steps for the Senate (e.g., issues that need further consideration).

The Working Group consisted of the Chair and Vice Chair of the Berkeley Division of the Academic Senate and representatives of the Committees on Budget and Interdepartmental Relations, Courses of Instruction, Educational Policy, and the Graduate Council. The Working Group Chair is a former Chair of the Graduate Council and former member of the Coordinating Committee on Graduate Affairs. We wish to express our particular gratitude to the Senate staff who assisted us, Linda Song and Sumei Quiggle. See appendix A for a complete roster.

EXECUTIVE SUMMARY

1. The main goal in the proposal and Academic Senate review of new online graduate degree programs should be maintenance of Berkeley quality.

2. Proposals for new online graduate degree programs should follow the template for substantive change review (distance learning) set forth by the Western Association of Schools and Colleges. See appendix D for template.

3. When proposals for new online graduate degree programs contain proposals for a significant number of new (online) courses, a subcommittee with membership from the Committee on Courses of Instruction (COCI) and Graduate Council (GC) should jointly consider the viability of the entire group of proposals before the courses are reviewed by COCI and the degree proposal by GC.

4. New online degree programs should gather data above and beyond the data gathered by existing "face-to-face" programs. These data will touch on both academic and fiscal matters but will especially be concerned with outcomes.

5. Newly approved online graduate degree programs should be reviewed after four years, following the current GC procedure for review of degrees offered by graduate groups; thereafter review may be appropriate within regular departmental reviews, but the online degree program should receive separate scrutiny.

6. Existing mechanisms suffice for issues of faculty workload and efficacy of instruction.

7. A number of faculty concerns remain and will need to be addressed if/when/as new online professional graduate degree programs are put into place.

DISCUSSION

In the following report, we discuss the methodology we employed to gather information to meet the charge, followed by a general preamble and then specific discussion of the various items in the charge. We combine a discussion of items 1 and 2 of the charge because they offer two sides of the same coin.

Methodology

We gained information on the issue of online courses and degree programs through identifying, reading, and discussing relevant documents, and through reviewing previous Senate committee discussions of online courses. We also informally contacted persons with expertise and experience in offering and reviewing online courses and degree programs, both at Berkeley and elsewhere, and logged on to demonstration versions of online courses and degree programs at Berkeley and other institutions. Appendix B assembles a list of persons interviewed and topics discussed. Appendix E reports the experience of two colleagues who recently developed an online version of a popular undergraduate course. We include their reports because some concerns are raised that Senate reviewers of proposals for online professional graduate degree programs will wish to consider carefully.

One fact that emerged clearly is that information on online instruction accumulates very rapidly and is sometimes contradictory. It would hardly be an exaggeration to say that our charge constituted something of a moving target.

Introduction

Proposals for new graduate degrees are reviewed according to guidelines from the Coordinating Committee on Graduate Affairs (CCGA), the systemwide counterpart to the GC. Broadly speaking, in order to be approved, a proposal for a new degree program must demonstrate the need for the new program (e.g., potential student demand; potential placement of graduates; lack of overlap with existing programs at Berkeley, UC, and within California), the existence of the resources needed to conduct the program (e.g., faculty, space, support budget), and the quality of the curriculum proposed. Proposals for new online graduate degrees must be judged by the same criteria, but the substitution of the online mode of instruction raises a set of additional questions. Approval by the Western Association of Schools and Colleges (WASC) is also required for any degree program in which 50% or more of the program is offered in a new modality (e.g., online education).

The conventional wisdom on online professional graduate degrees is that the primary demand comes from persons who have obtained a bachelor's degree a few years before and wish to enhance their personal skills and professional credentials. Within the UC system, the two existing online graduate programs (UCLA's online Master of Science in Engineering and UCI's online Master of Advanced Study in Criminology, Law, and Society) fall into this category. It is important to distinguish the goal of such a degree program from that of a research Master's degree, which is an academic degree that is generally a stepping stone to a Ph.D. A professional Master's degree is geared towards persons who will work in a business or non-profit setting and

a research Master's degree targets persons more interested in a research setting. Berkeley already has professional Master's degrees, approved according to the usual criteria. We expect that most proposals for online graduate degree programs will indeed be for professional Master's degrees. There are literally thousands of such programs worldwide, including some offered by our peer institutions. It is not easy to determine whether these programs have succeeded, or even to determine the type of metric to measure success: financial, academic, outreach and access, and so forth. We did not attempt to survey all of the various programs nationwide. Our main concern here is essentially one issue: how to maintain the highest quality instruction that is equivalent to existing UC Berkeley programs, which are generally considered among the best in the world.

At the same time, it is important to stress that a professional graduate degree must represent more than just a certification of a very narrow skill set, like the various certificate programs University Extension (UNEX) offers. UC Berkeley is first and foremost a research institution. Our teaching is synergistic with our research. In all of our degree programs, we aim to train future leaders in their fields. Proposal and review of new graduate degree programs must always be undertaken within this context. While it may be that online professional degree programs do not aim to train future leaders in the same career paths as those targeted in research degrees, the aim must be quality that meets the standard of graduate training at Berkeley, what we might term comprehensive excellence. Anything less threatens the reputation of the entire institution (what some have termed "diminution of the brand").

Courses

Curricula are delivered through courses of instruction. We therefore turn to a discussion of online courses. COCI has approved a handful of these, having certified that they measure up to Berkeley standards of quality. Most of the courses thus far approved have been offered by Summer Sessions and are online versions of existing high-enrollment, undergraduate classes taught by ladder faculty. They were developed in collaboration with the UNEX Online Operations Department, which has developed approximately 140 fully online courses.

Online instruction is frequently identified as synchronous, asynchronous, or hybrid. Synchronous events are those where all students and an instructor are online at the same time, for example for a video-conference lecture or a chat room discussion. This most closely replicates face-to-face instruction. With asynchronous instruction students access instructional modules in their own time, but still have access to instructors and their cohort through blogging, email, etc. This type of delivery is particularly attractive to working adults and students living in different time zones, especially when the instructional modules have been developed specifically for online delivery, rather than being, say, videotapes of lectures to a face-to-face class. Many online courses are hybrid, including both synchronous and asynchronous components.

The UNEX online course development process appropriately begins with identification of learning outcomes and then moves on to considerations of activities that would lead to these outcomes and methods to assess them. According to Extension staff, building a course takes 15 weeks and costs about $50,000. With the goal of creating an experience equivalent to face-to-face courses, these online courses are described as instructor-led, cohort-based, first-person learning. Instructor-led means that live help or interaction with an instructor is available through

online office hours, online chat, and the like, and that students must complete assignments on schedule. Cohort based means that students are placed into online teams (it has been reported that this has promoted face-to-face team study sessions on some occasions). First-person learning means that the course is geared for a first person experience (students are guided through online instructional modules in which they can pace themselves as long as they complete each module by a deadline). The opposite experience would be asynchronous viewing of traditional lectures taped at some previous time, with limited or no access to the instructor and without a cohort, with students reading and studying on their own, and finally demonstrating mastery of the course material (through a traditional paper or examination) when they feel prepared to do so. We are told that such self-paced, fully asynchronous online courses at UNEX have dismal completion rates. The key to success appears to be instructor involvement, a structured course environment, and building a cohort team.

Meaningful instructor involvement necessitates a low student-faculty ratio. The literature and experience both suggest that 25:1 is ordinarily optimal (in larger courses, one GSI per 25 students, plus one faculty member), although UNEX reports success in some courses with ratios up to 75:1.

Developing online courses is not trivial. We quote here the experience of Professor Philip Stark of Statistics, an important leader in online instruction at Berkeley.

> It has taken about 8,000 hours of my time over 13 years to develop (what I consider to be) pedagogically effective interactive content and assignments. The materials wouldn't have worked well as an online-only course for at least the first 5 years of development. I used it to teach hybrid classes while I was developing it, starting in 1997. Work continues: I'm building a searchable database of lecture "clips" on individual topics, edited from my webcast lectures. The clips will also be linked to the text where the topics are introduced, and to the glossary.
>
> Tailoring material and pedagogy to online media and creating and honing effective, interactive, online content is quite challenging. It requires subject-matter knowledge, teaching experience, careful writing, programming skills (I've had to learn Java, JavaScript, XML, CSS, and Perl-cgi), seemingly endless debugging on different operating systems, and lots of user testing with students--many cycles of iterative improvement. Accessibility, especially for blind students, is an issue that must inform design and the choice of technologies and standards. Technical maintenance is demanding as web standards and browsers evolve. Developing and supporting a first-rate online course is not easily subcontracted or delegated to GSIs [graduate student instructors] or technical staff: It requires a great deal of faculty attention. And it is not fast.
>
> In a large-enrollment course like Statistics N21, ensuring that students have up-to-date browsers before the class starts and providing technical support during the first week or two of class are virtually a full-time job. (Those are jobs that GSIs and technical staff can help with.)

> The "bandwidth" of online instruction is lower than face-to-face instruction: it takes longer to convey the same information, both from instructor to student and from student to instructor. One side effect is that online office hours are less efficient than in-person office hours, so more office hours need to be offered. Online courses therefore need correspondingly more staff, even before factoring in technical support. To hold online office hours at times that are convenient for students in, say, Taiwan, requires working odd hours. For reference, here is the office hour schedule for N21 this summer: http://statistics.berkeley.edu/~stark/Teach/S21/Su10/index.htm#officeHours

Technical support is also an important aspect of the delivery of courses, not just their development. For the courses currently offered, UNEX staff handle all operational logistics. UNEX also provides students with 24/7 technical support and indeed contacts all the enrolled students before the class begins to make sure they are set up and can access the materials.

One concern with online instruction is cheating. The online UNEX courses have a scheduled, proctored in-place (not online) final examination. Each student must show proof of identity and pass the final examination to pass the course. Thus although it would be quite possible for someone else to do a student's online work, the student must show mastery of the material at the final examination. Professors Burkhard Militzer and Geoff Marcy raise issues they encountered with cheating while teaching an online undergraduate course (see Appendix E). While it is unclear how these issues would relate to a professional graduate course, we believe their comments are worth noting.

The limited feedback we have received about online instruction suggests that the level of instructor satisfaction is lower than with traditional face-to-face instruction (for example, the lack of student contact when one answers queries via email rather than in face-to-face office hours). Obviously, too, the student experience is different from that in face-to-face instruction. Nevertheless, it appears that learning goals are met. Points to consider, however, are that these courses are not cheap to develop, and that once developed they need regular "refreshing" (reconsideration of learning goals and activities as well as technological upgrades—that is, redevelopment, with attendant costs). Extension staff have stated that it aims to refresh Berkeley's online courses every three years. It is clear that if "refreshing" does not occur, there is a danger of a drop in quality. We would therefore expect proposals for new online degree programs to include specific plans for course "refreshing."

Another important point is that proposals for new online degree programs may require development of online courses not equivalent to courses already being offered but wholly new. In these cases Senate reviewers should, we think, seek high levels of instructor involvement and pay special attention to learning goals and assessment. Although COCI does not currently have a mechanism for assessing courses once they have been offered, it may be appropriate to involve COCI in evaluation of some online courses after they have been offered, as a mechanism for adding value. This reassessment might occur in connection with the "refreshing" of courses, or it might logically be associated with the ongoing GC review we propose (see "Review" on p. 12).

Evaluation of online degree programs therefore must begin with this basic fact: online courses offer a very different learning experience from face-to-face courses. Furthermore, at Berkeley

our experience has been almost exclusively with online courses offered at the undergraduate level.

Programs

While it is quite possible that online courses might be worked into existing graduate degree programs, our charge relates to proposals for professional graduate degree programs that are to be delivered largely or exclusively via online courses. As a general principle, we believe that the principles of quality articulated above for courses hold for degree programs as well. That is, degree programs may be more likely to succeed academically if they involve strong instructor involvement, some synchronous instruction, and creation and maintenance of a cohort. As data become available, Senate reviewers should examine the efficacy of synchronicity in different elements of courses, to gain a better understanding of how much of a course/program can be asynchronous. We are aware that there could be problems with fully synchronous programs and cohort if students wish to take different amounts of time to complete the degree program, but this is a problem also with traditional degree programs.

A variety of top schools have online professional graduate programs, most prominently MIT, through its Sloan School of Management, which provides degrees that are a hybrid of engineering and business/management. There are no completely online degrees (a working group member discussed this at length with his contacts at MIT on the engineering faculty). There is a strong emphasis on residency and the development of a cohort group.

Furthermore, MIT strives to have the lectures be synchronous, not pre-taped and not available "off-the-shelf." Several other top Engineering Schools (Stanford, UCLA, USC, the University of Illinois at Urbana-Champaign, Columbia) have sought to emulate the MIT program with varying degrees of success (and failure), primarily, we understand, because they have deviated from the basic tenets for a high-quality program. Adhering to these tenets for a high-quality program is not inexpensive. However, the alternative is failure in a variety of possible ways, although quality alone does not necessarily guarantee success.

Instructor involvement, and especially the model for the courses developed with UNEX, raises more general questions when viewed in light of a degree program. While every graduate degree program faces to some extent issues of expert faculty coverage in various subject areas, thereby exposing students to a range of faculty and so forth, our findings suggest that online degree programs may pose special challenges. It will be therefore particularly important to ensure that there are enough instructors and alternates to teach the courses regularly, and that the curriculum is enriched by exposure to the research activity of a broad range of faculty.

When students begin a degree program at the same time, move through the program at roughly the same rate, fulfilling requirements and completing the program at roughly the same time, a cohort is created. Many existing Berkeley graduate degree programs create a cohort, which appears to contribute both to satisfaction and success in graduate degree programs. We therefore recommend that Senate reviewers look for synchronous elements within proposed online degree programs and methods to create and maintain a cohort. One method to create a cohort in an online degree program is to bring all the students together on campus at the beginning and/or end

of the program. We advocate both for the following reasons.

Bringing the group together at the beginning immediately creates the cohort. It allows students and instructors to connect names and faces (and probably reduces the opportunities for cheating through having another person complete a student's online assignments). Students see the Berkeley campus and can develop the sense that they are part of the larger Berkeley enterprise.

Bringing the group together at the end provides an opportunity for a comprehensive examination or capstone experience. To address the possibility of cheating, in either case, students could be required to produce identification, and they would have to pass the in-person component in order to pass the program. With careful planning, students would be able to participate in commencement exercises.

Bringing the group together on campus would go a long way to mitigating the serious problem with academic residency. We are aware that this solution may be expensive and would be particularly burdensome for an international audience and working students in demanding jobs. We offer it, however, as an example of what might constitute a "best practice." We believe that a proposal for a degree program that was fully asynchronous, with no cohort or physical connection with campus or ladder faculty, would need to be very persuasive in all other aspects in order to gain approval.

As regards the letter of residency requirements, Berkeley Division Regulation A290 states:

> Except as provided in Senate Regulations 614 and 694, the minimum residence at the University of California required for a degree is two Semesters. (See SR 688. For an exception to this regulation, see SR 690.)

Senate Regulation 694.1 states:

> Requirements for a professional Master's degree may be satisfied in full by off-campus graduate study unless the Graduate Council concerned determines that a substantial part of those requirements may be more effectively satisfied by resident study on a campus of the University.

Should proposals for non-professional graduate or any undergraduate degree be put forth in future, these regulations will need to be reconsidered.

Financial structure

There are important issues here of faculty compensation, possible overload teaching, departmental and campus compensation, and others, of which perhaps the most salient is the protection of existing programs from the financial risk associated with the costs of developing and maintaining new online degree programs (see further the comment under "Data," p. 12). In addition, proposers need to explain the payment structure not only as a business model, but also insofar as it affects the cohort group: for the program, tuition, by the course.

RECOMMENDATIONS

1) Recommendations regarding information proposers should include in a proposal for an online degree, additional to that required for proposals for new degrees delivered using conventional instructional methods.

2) Criteria for the review and approval of online graduate degree programs.

We take these two charges together, as constituting two sides of the issue; that is, we believe that the criteria used for review of online graduate degree programs should be judgment of the information and other materials provided by the proposers. As noted above, Berkeley has in place a process of evaluation of new graduate degree proposals, and one possible response to our charge would be to rely on that process, which has built one of the greatest institutions of graduate training anywhere. However, we are moved by the fact that change in the mode of instruction (to online) automatically triggers WASC (the Western Association of Schools and Colleges, which is Berkeley's accreditation body) substantive change review. This means that at one level, proposals will be reviewed in any case according to WASC criteria. Since the WASC criteria strike us as clearly articulated and thorough, we recommend that departments and units follow them when proposing new online graduate degree programs and that Senate reviewers use them when analyzing and evaluating the programs. We emphasize that mere adherence to the WASC criteria cannot be a guarantee of quality, but we believe that, at a minimum, such adherence will provide a sound basis for evaluation of program quality. It is up to proposers and reviewers to be clear that Berkeley standards of quality are being met. Since in our view the WASC criteria do not address financial issues in any depth, reviewers will need to pay close attention to the question of future financial success outside the structure of the WASC criteria.

WASC charges a fee for the substantive change review it conducts when degree proposals with new modality are put forward. We believe that the unit submitting the proposal should bear this cost, not campus.

3) Recommendations about new procedures (if any) needed for the review of online graduate degree proposals.

Since there are currently very few online courses approved on campus, most online graduate degree programs will need to submit a series of courses—sometimes, indeed, all the courses for the program—for COCI approval in conjunction with the submission of the degree program for GC and Senate approval. (Indeed, this is the case with both proposed graduate degree programs.) This poses a potentially serious problem: COCI would be required to undertake a large effort of course evaluation without knowing whether the courses would ever be offered and would in theory also be making a de facto judgment about the viability of the degree program. At the same time, campus practice appears to be that all courses be approved by COCI before a proposed degree program can be reviewed by GC. We therefore propose a joint COCI /GC review before either full committee begins formal evaluation of the courses/degree program (a change to the apparent campus practice). When the Graduate Division has completed a review of a proposed program and finds it appropriate for Senate review, a joint COCI/GC subcommittee should be formed to review the viability and feasibility of both the courses and the degree program. If this

joint subcommittee finds that the proposed courses and the proposed degree program are viable from an academic standpoint and feasible from the standpoint of programmatic and resource restrictions, it should approve the forwarding of the series of courses to COCI and of the program proposal to GC for simultaneous review.

We see no reason to involve additional Senate committees at this point of the review process. The Committee on Educational Policy, Committee on Budget and Interdepartmental Relations, and Divisional Council should continue their participation in the latter stages of Senate review of graduate degree proposals.

4) Recommendations for data that should be collected by online degree programs that Senate committees could use when reviewing departments during the normal cycle, as well as recommendations for the off-cycle review of online programs.

5) Recommendations for data that should be collected by online degree programs that can guide the development and review of future online degree programs (lessons learned).

We take these two charges together, as constituting two sides of the issue, since they both involve the gathering of data, in many cases the same data, and the review process.

Data

Online degrees have not been offered before on the Berkeley campus, and will target student cohorts different from those served by Berkeley's traditional programs, using a delivery method that has little history at Berkeley. While there is always risk in new ventures, they also provide us with an opportunity to acquire data and experience that can benefit and inform future educational activities of the broader campus community. As such, it will be important that online programs collect detailed academic and fiscal data. Recognizing both the risks and the new information to be generated from online degree programs, we consider it important that such programs are reviewed regularly, particularly initially. We strongly recommend that new programs are reviewed after four years, and then undergo a full review after seven or eight years (see below for further recommendations on reviews). Such reviews will provide sponsoring departments the opportunity to systematically evaluate the strengths, weaknesses, opportunities, and challenges of the programs, and use this data-driven evaluation to improve the online programs. They will also provide the mechanism for disseminating program data to the campus community.

The academic data to be collected and compiled by online degree programs will be similar to those compiled by traditional, face-to-face programs undergoing academic reviews. However, because more non-traditional students are likely to be enrolled, programs will be expected to provide more analysis correlating program outcomes with the profiles of individual participants. Such longitudinal studies will be important for informing future admissions decisions. For example, is there a strong correlation between the persistence of students to graduation and their baccalaureate GPA? Or is post-graduation experience in the workplace the best indicator of persistence and success in an online degree program? Do the outcomes depend upon whether a student is taking the program as a stepping stone to a conventional doctoral program or to

improve immediate career prospects? In addition, departments will be expected to provide data on changes in the enrollment and curricula of their traditional degree programs, and the graduation rates and outcomes of students in these programs, with an analysis of the reasons for significant changes (for example, if the number of students in traditional Master's degree programs has declined rapidly, this may reflect more attention being focused on the online program, but may also be due to the fact that the vast majority of students prefer the online delivery method).

The fiscal data to be collected and compiled will include data on the numbers of students enrolled compared to projections, workload data for instructors and staff involved in both traditional and online programs offered by the department, along with data on expenses and revenues. In many cases online professional graduate programs will be self-supporting, and would only be launched after marketing studies have indicated that there is sufficient demand from well-qualified individuals to ensure that the programs are viable. Because of the significant up-front costs associated with developing high quality online courses, relatively high enrollments will be needed for the programs to break even. In the event of enrollment demand falling short of projected levels, it is important that the fiscal shortfall does not divert funds from regular, state-funded programs, or lead to admission of students who are less competitive academically than those currently enrolled at Berkeley. Conversely, if enrollments exceed projections, it will be important that the online students get Berkeley-quality interactions with instructors without diverting faculty and graduate students from on-campus instruction, or staff from supporting campus faculty and students.

Review

The campus has in place a mechanism for reviewing departments, and such reviews include graduate degree programs; online degree programs would naturally be included in such reviews. However, we think that a method rather like GC review of graduate groups might, at least initially, be advisable for newly approved online degree programs. While these graduate group reviews are intended to review degree programs that otherwise would not be reviewed, they differ from ordinary departmental reviews in that they are focused exclusively on single degree programs and measure outcomes, as indicated by such factors as faculty and institutional commitment, current student satisfaction, curricular assessment, placement records, and so forth. These would be the kinds of issues that GC might specifically wish to address for online degree programs as these begin to occur. In time we would expect that these "special degree program reviews" of online degree programs could be folded into the standard departmental review process. It might make sense to schedule such "special degree program reviews" relatively frequently, perhaps every four years, that is, mid-way between regularly scheduled departmental reviews (currently every eight years). For regularly scheduled departmental reviews, the GC should probably give special scrutiny to online graduate degree programs. As noted earlier (see p. 7), COCI might also review online courses every four years to ensure that these courses have been updated as needed,

6) Recommendations regarding teaching service credit for online instruction and how teaching efficacy will be evaluated in an online context.

Campus practice generally leaves the assignment of teaching service credit to departments, and indeed the Academic Personnel Manual (APM) specifically vests in the Chair the responsibility for making teaching assignments. Although online courses are not at this time common on campus, departments have dealt with other sorts of relatively uncommon courses, such as team-taught or short-duration courses. Although completely asynchronous courses might pose a special challenge, they are not likely to be frequent. Our view, then, is that existing campus practice can deal with the issue of teaching service credit. Professor Marcy, though, offers a cautionary note about how credit for teaching an online course in the summer could work out (see "Credit for Teaching an Online Course?" p. 34).

Teaching efficacy is similar, in that departments and other teaching units have the primary responsibility for insuring that instructor effectiveness is evaluated for every course taught on campus. Furthermore, chairs and other departmental reviewers are responsible for evaluating the overall teaching record of faculty who are reviewed for merit advancements and promotion. This record includes teaching effectiveness in individual courses and also any efforts toward the development of new instructional methods, courses, or curricula. The evaluation of the chair or equivalent forms the basis of campus-level review. The campus thus has in place a structure in which the evaluation of the contributions of individual faculty members are evaluated, and contributions to online degree programs, should they be approved, would take place within this structure.

We would, however, expect that proposals for new online graduate degrees would include specific measures for evaluating the success of each new online course, and that this evaluation would be ongoing and would be focused not on the performance of the faculty member(s) involved (i.e., through student evaluations) but on the learning outcomes.

7) Identify next steps for the Senate (e.g., issues that need further consideration).

We believe that a broad set of faculty concerns remains, and that these will need to be addressed if the Senate approves an online degree program.

- Are online degrees perceived as a "lesser degree" or simply a different degree? We assume that the Senate will not approve a "lesser degree;" the issue is one of perception, both within and outside of the institution.

- Might new and different oversight mechanisms need to be put in place to maintain the highest quality? These might be something like subcommittees of COCI and GC with oversight of online courses or programs.

- Do the students have the equivalent (or perhaps better) mastery of the course information, relative to a traditional course (when a comparison is possible)? In general, COCI is concerned that the relative efficacy of online and face-to-face courses has not been well-studied, and is not well-understood.

- How does teaching online courses impact faculty satisfaction? Will faculty prefer to teach offline courses? How will this impact programs?

- How does the financial model relate to the department and to the rest of campus?

- Do faculty perceive the system for assigning and evaluating teaching in online graduate degree programs to be consistent and fair and in line with campus standards?

- Is there any negative impact on existing "face-to-face" programs?
    - Resources diverted to online programs
    - Impact on the reputation of existing programs

- Do students in online degree programs miss out in terms of "non-quantifiable" aspects of taking courses at Berkeley?

- How do financial aid requirements impact the structure of the degree, the charges associated with the degree, etc.?

- How do we ensure that these professional programs meet the needs of the market, both in the short term (immediately impacting job skills), and in the long term (educating leaders in the relevant industries)?

Appendix A: Online Graduate Degrees Working Group roster

Members
Professor John Lindow (Scandinavian), Working Group Chair, member of the Committee on Budget and Interdepartmental Relations

Professor Fiona Doyle (Materials Science & Engineering), Division Vice Chair, member of the Divisional Council

Professor Philip Kaminsky (Industrial Engineering & Operations Research), member of the Committee on Courses of Instruction

Professor Christopher Kutz (Law/Jurisprudence & Social Policy), Division Chair, Chair of the Divisional Council

Professor Ignacio Navarrete (Spanish & Portuguese), Chair of the Committee on Educational Policy

Professor Tarek Zohdi (Mechanical Engineering), member of the Graduate Council

Staff
Sumei Quiggle, Senate Analyst, Academic Senate

Linda Song, Associate Director, Academic Senate

Appendix B: Summary of people interviewed, materials reviewed, and topics discussed

Wednesday, April 14, 2010, 11:00 A.M. to 1:00 P.M.

- Introductions, review of working group's charge, and discussion of how to proceed
  Materials to review:
  - Working group charge
  - List of possible guests
  - Report of the Senate Special Committee on Online and Remote Instruction and Residency and Responses by Senate committees to the report

Tuesday, April 20, 2010, 3:00 P.M. to 5:00 P.M.

- Jason Lemon (Associate Dean, University Extension) and Roxanne Morrison (Director of Online Operations, University Extension): online course demonstration
  Materials to review:
  - COCI supplemental questions for online courses
  - CCGA proposal requirements for state-supported graduate degree programs
  - CCGA proposal requirements for self-supporting graduate degree programs
  - WASC Good Practices for Electronically Offered Degree & Certificate Programs

Tuesday, April 27, 2010, 3:00 P.M. to 5:00 P.M.

- Diane Hill (Assistant Dean, Graduate Division): graduate degree proposal requirements
  Materials to review:
  - CCGA proposal requirements for state-supported graduate degree programs
  - CCGA proposal requirements for self-supporting graduate degree programs
  - CCGA Handbook excerpts

Wednesday, May 5, 2010, 11:00 A.M. to 1:00 P.M.

- Calvin Morrill (Professor of Law and Sociology): experience designing and teaching a course (on organizational perspectives of the legal system) for the online Master of Advanced Studies in Criminology, Law, and Society at UCI for four years; participation in numerous steering/instructor committee meetings regarding the degree while faculty at UCI.
- Diane Harley (Research Associate, Center for Studies in Higher Education): research/data collection on online instruction
  Materials to review:
  - Report by Senate Special Committee on Online and Remote Instruction and Residency

Wednesday, May 12, 2010, 11:00 A.M. to 1:00 P.M.

- Cynthia Schrager (Assistant Vice Provost, Teaching, Learning, Academic Learning, and Facilities): Western Association of Schools and Colleges (WASC) substantive review process
  Materials to review:
  - WASC Proposal Template for Online, Blended, or Technologically Mediated Programs
- Sandy Ellison (Principal Analyst, Office of Planning and Analysis): Vice Provost of Academic Affairs and Faculty Welfare and administration review process
  Materials to review:
  - CCGA Handbook excerpts

Wednesday, May 19, 2010, 11:00 A.M. to 1:00 P.M.

- Wrap-up discussion and discussion of the final report

Appendix C: Coordinating Committee on Graduate Affairs (CCGA): Format for the graduate degree program proposal and information required by California Postsecondary Education Commission (CPEC) for academic degree program proposals

CCGA Format for the Graduate Degree Program Proposal

Title

A proposal for a program of graduate studies in (e.g., English) for the (e.g., M.A., Ph.D.) degree(s).

Date of Preparation

Contact Information Sheet

A contact information sheet with the lead proponent clearly identified.

Section 1. Introduction

A statement setting forth the following:

1. Aims and objectives of the program. Any distinctive features of the program should also be noted.
2. Historical development of the field and historical development of departmental strength in the field.
3. Timetable for development of the program, including enrollment projects. Consistency of these projections with the campus enrollment plan. If the campus has enrollment quotas for its programs, state which program(s) will have their enrollments reduced in order to accommodate the proposed program.
4. Relation of the proposed program to existing programs on campus and to the Campus Academic Plan. If the program is not in the Campus Academic Plan, why is it important that it be begun now? Evidence of high campus priority. Effect of the proposed program on undergraduate programs offered by the sponsoring department(s).
5. Interrelationship of the program with other University of California institutions, if applicable. The possibility of cooperation or competition with other programs within the University should be discussed. Proponents should send copies of their proposal to all departments on other campuses offering similar degrees. Review letters should be obtained from chairs of such departments and these letters should be attached to the proposal.
6. Department or group which will administer the program.
7. Plan for evaluation of the program within the offering departments(s) and campus wide.

Section 2. Program

A detailed statement of the requirements for the program including the following:

1. Undergraduate preparation for admission.
2. Foreign language. —The CCGA recognizes that foreign language competence may be an important element of graduate education of doctoral programs. It is the responsibility of the Divisional Graduate Councils to insure that the proponents of new doctoral programs have carefully considered the value of a foreign language requirement. We shall assume that when a proposal for a new doctoral degree has been forwarded to CCGA, this issue has been addressed and resolved to the satisfaction of the Division. Divisional Graduate Councils

should apply the same standard adopted for new programs in reviewing existing doctoral programs‖ (CCGA Minutes, 5/14/85, p.6)

3. Program of study:
   a) Specific fields of emphasis
   b) Plan(s): Masters I and/or II; Doctors A or B
   c) Unit requirements
   d) Required and recommended courses, including teaching requirement
   e) When a degree program must have licensing or certification, the requirements of the agency or agencies involved should be listed in the proposal, especially the courses needed to satisfy such requirements (CCGA Minutes, 1/17/78, p.5)
4. Field examinations – written and/or oral.
5. Qualifying examinations—written and/or oral.
6. Thesis and/or dissertation.
7. Final examination.
8. Explanation of special requirements over and above Graduate Division minimum requirements.
9. Relationship of master's and doctor's programs.
10. Special preparation for careers in teaching.
11. Sample program.
12. Normative time from matriculation to degree. (Assume student has no deficiencies and is full-time.) Also specify the normative lengths of time for pre-candidacy and for candidacy periods. (If normative time is subsequently lengthened to more that six years, prior approval of CCGA is required.) Other incentives to support expeditious times-to-degree: what policies or other incentives will assure that students make timely progress toward degree completion in the proposed program?

Section 3. Projected need

A statement setting forth the following:

1. Student demand for the program.
2. Opportunities for placement of graduates. UC anticipates that CPEC in particular will expect detailed and convincing evidence of job market needs. This will be especially true for programs in graduate fields now well represented among UC campuses and California independent universities, as well as programs in the same field proposed by more than one campus. IF UC already offers programs in the field, what are their placement records in recent years? What recent job listings, employer surveys, assessments of future job growth, etc. can be provided to demonstrate a strong market for graduates of this program, or for graduates of specialty areas that will be the focus of the program?
3. Importance to the discipline.
4. Ways in which the program will meet the needs of society.
5. Relationship of the program to research and/or professional interests of the faculty.
6. Program Differentiation. How will the proposed program distinguish itself from existing UC and California independent university programs, from similar programs proposed by other UC campuses? Statistics or other detailed documentation of need should be provided.

Section 4. Faculty

A statement on current faculty and immediately pending appointments. This should include a list

of faculty members, their ranks, their highest degree and other professional qualifications, and a citation of relevant publications; data concerning faculty should be limited to only that information pertinent to the Committee's evaluation of faculty qualifications. (For group programs only, one copy of letters from participating faculty indicating their interest in the program should be included. In addition, comments from chairmen of departments with graduate programs closely related to or affected by the proposed program should be included.)

Section 5. Courses

A list of present and proposed courses including instructors and supporting courses in related fields. The catalog description of all proposed courses should be appended. The relationship of these courses to specific fields of emphasis and future plans. How will the courses be staffed given existing course loads?

Section 6. Resource requirements

Estimated for the first 5 years the additional cost of the program, by year, for each of the following categories:

1. FTE faculty
2. Library acquisition
3. Computing costs
4. Equipment
5. Space and other capital facilities
6. Other operating costs

Indicate the intended method of funding these additional costs.

If applicable, state that no new resources will be required and explain how the program will be funded. If it is to be funded by internal reallocation, explain how internal resources will be generated.

State Resources to Support New Programs. The resource plan to support the proposed program should be clearly related to campus enrollment plans and resource plans. Campuses should provide detailed information on how resources will be provided to support the proposed program: from resources for approved graduate enrollment growth, reallocation, and other sources. What will the effects of reallocation be on existing programs? For interdisciplinary programs and programs growing out of tracks within existing graduate programs: What will the impact of the new program be on the contributing program(s)? When the proposed program is fully implemented, how will faculty FTE be distributed among contributing and new programs?

Section 7. Graduate Student Support

It is recommended that all new proposals include detailed plans for providing sufficient graduate student support. In fields that have depended on federal research grants, these plans should also discuss current availability of faculty grants that can support graduate students and funding trends in agencies expected to provide future research or training grants. Are other extramural resources likely to provide graduate student support, or will internal fellowship and other institutional support be made available to the program? Describe any campus fund-raising initiatives that will contribute to support of graduate students in the proposed program.

How many teaching assistantships will be available to the program? Will resources for them be provided through approved enrollment growth, reallocation, or a combination? How will reallocation affect support in existing programs?

Section 8. Governance

If the new program is being offered by a unit that does not/has not offer(ed) graduate degrees, then a setting forth of ―the Department or Group that will administer the program‖ is required, and the proposal should include bylaws associated with the new program. Bylaws should also be included in with all proposals submitted by interdepartmental programs (IDPs). IDPs are graduate degree granting programs that are not offered by a single department, but administered by a group of faculty who are constituted for that purpose, and whose governance lies outside that of any single department.

Section 9. Changes in Senate regulations

The proposal should state clearly whether or not any changes in Senate Regulations at the Divisional level or in the Academic Assembly will be required. If changes are necessary (e.g., for all proposals for new degrees), the complete text of the proposed amendments or new regulations should be provided.

Academic Degree Program Proposals: Information Required by CPEC

This questionnaire is to be completed by sponsoring faculty (department or group). It will be used by UCOP to prepare a report to the California Postsecondary Education Commission. If more space is required, please attach as many additional sheets as necessary. Attach to full proposal.

1. Name of Program:

2. Campus:

3. Degree/Certificate:

4. CIP Classification (to be completed by Office of the President):

5. Date to be started:

6. If modification of existing program, identify that program and explain changes.

7. Purpose (academic or professional training) and distinctive features (how does this program differ from others, if any, offered in California?):

8. Type(s) of students to be served:

9. If program is not in current campus academic plan give reason for proposing program now:

10. If program requires approval of a licensure board, what is the status of such approval?

11. Please list special features of the program (credit for experience, internships, lab requirements, unit requirements, etc.)

12. List all new courses required:
    Department, Course Number, Title, Hours/Week Lecture Lab.

13. List all other required courses:
    Department, Course Number, Title, Hours/Week Lecture Lab.

14. List UC campuses and other California institutions, public or private, which now offer or plan to offer this program or closely related programs:

15. List any related program offered by the proposing institution and explain relationship.

16. Summarize employment prospects for graduates of the proposed program. Give results of job market survey if such have been made.

17. Give estimated enrollment for the first 5 years and state basis for estimate.

18. Give estimates of the additional cost of the program by year for 5 years in each of the following categories: FTE Faculty, Library Acquisitions, Computing, Other Facilities, Equipment. Provide brief explanation of any of the costs where necessary.

19. How and by what agencies will the program be evaluated.

Appendix D: Template: Distance Education Programs
by WASC Administration

Introduction

Proposal Template for Online, Correspondence, Satellite, Video Correspondence or Other Technology-Mediated Programs- Introduction

Please read these instructions carefully before beginning your proposal

INSTRUCTIONS:

- This template outlines the mandatory sections of the proposal. Please specifically answer each question in the template. No section should be left blank. If a question is not applicable, enter "N/A" in the appropriate section. Incomplete proposals will not be forwarded to the Substantive Change committee for review.
- Do not delete the questions.
- The proposal should be no more than 10,000 words, not including attachments.
- **Attachments are preferred as .PDF.** (Microsoft Office documents should be saved in versions compatible with Office 97-2003. Office 2007 / Windows Vista documents are not acceptable at this time.)

NAMING YOUR PROPOSAL:

Use the following naming convention for your document. Incorrectly named documents will not be reviewed.

[Tentative Review Year-Month], [Institution Name]: [Degree/Program Name] ([Modality])
Example: 2010-02, Sunshine University: BS in Engineering (Online)

REVIEWING YOUR PROPOSAL:

- Please review your proposal against the **Pre-Submittal Checklist** before submitting it.

SUBMITTING YOUR PROPOSAL:

- See the **WASC Guide to Submitting Substantive Change Proposals** for instructions on submitting your document.
- **Please have your institution's Accreditation Liaison Officer (ALO) notify the WASC Substantive Change Manager (smcgrew@wascsenior.org) once the proposal is complete and has been submitted.**

RESOURCES:

- Institutions proposing online programs should refer to the **Guidelines for the Evaluation of Distance Education**.
- For assistance on completing the educational effectiveness items, refer to the **Educational Effectiveness Framework**.
- For more information on substantive change policy and procedures, refer to the **Substantive Change Manual**.
- Information on the **Degree Level Approval Policy.**
- Samples of substantive change proposals may be found at: **http://samples.wascsenior.org.**
- The Rubric used by the Committee for scoring can be found here: **Rubric for the**

Evaluation of Substantive Change Proposals.

- Additional resources and documents may be found on the **Substantive Change page** or in the **Document Library** on the WASC website.
- For assistance formating LiveText submissions please review the **LiveText Tutorial.**

Section I: Institutional and Program Overview

A. Program Overview

1. Name of degree or program proposed.
2. Percent of program being offered via distance education. If the program is not being offered fully via distance education, how will the remainder of the program be offered?
3. Detailed description of the type of distance education modality being proposed and the format. Is it asynchronous, synchronous, online, correspondence, teleconference, video on demand, etc.?
4. Geographic scope of the program. Where will you market the program?
5. Projected number of students.
6. Type of student the program geared for, i.e. adult learners, part-time or full-time.
7. Initial date of offering.
8. Anticipated life of the program, i.e., one time only or ongoing? Cohort model or rolling admissions? Independent study?
9. Describe the external and/or internal partners contributing and/or participating in this proposal, if applicable. Attach any Memoranda of Understanding (final and signed) between the requisite parties. If more than 25% of the program will be delivered under contract with an institution or organization not certified to participate in Title IV, HEA programs, please see WASC's **Policy for Contracts with Unaccredited Organizations** and explain how this arrangement conforms with the policy.

B. Descriptive Background, History and Context

1. Brief description of the institution, including the broader institutional context in which the new program or change will exist. Connect the anticipated substantive change with the mission, purpose, and strategic plan of the institution.
2. Use the 'insert a 'LiveText' link' button above to add a link to the most recent Annual Report document previously submitted to WASC.
3. To address prior experience, list the number, variety and longevity of other similar programs that have been or are being offered via distance education. Include a summary or profile of one of the programs being offered via distance education to demonstrate prior experience.

C. Institutional Accrediting History Relevant to Substantive Change

1. Brief response to issues noted in prior substantive change reviews since the institution's last comprehensive review.
2. Institutional response to issues noted in prior Commission or other Committee action letters or visiting team reports that are relevant to the proposed substantive change.
3. If the proposed program is within a school accredited by a professional accrediting agency, or is related to a program that is accredited by a professional accrediting agency, list the agency, year accredited, and include a copy of the executive summary to the most recent team evaluation report and agency action. Also, indicate whether the specialized

agency needs to review and approve the proposed program prior to implementation.

Section II: Program Need and Approval

A. Program Need

1. Program need/rationale framed by the institution's mission and strategic goals.
2. Process and results used to establish the need. Please provide a summary of the findings, not the full study.
3. Evidence used to support enrollment projections and to support the conclusion that interest in the program is sufficient to sustain it at expected levels. If the program is planned to be offered for a finite period, provide the enrollment data for the length of the program. If the program is planned to be offered continuously, then provide enrollment projections for the first three years. These enrollment projections should be reflected in the budget.
4. Attach the recruitment and/or marketing plan for the program. Note that all materials regarding this program should clearly state, "Pending WASC approval" prior to Commission ratification.

B. Planning/Approval Process

1. Description of the planning and approval process within the institution, indicating how faculty and other groups (administrators, trustees, stakeholders, etc.) were involved in the review and approval of the new site or program.

Section III: Program Description and Evaluation

A. Curriculum

1. Overall description of the program, including the alignment of the program philosophy, curricular design, and pedagogical methods with the target population and degree nomenclature selected.
2. How has the method of design of the program been reflected in the curricular design and pedagogy?
3. Program learning outcomes that articulate what the student will be able to do after he/she completes the program and are appropriate to the level of the degree.
4. Curricular map articulating the alignment between program learning outcomes and course learning outcomes and demonstrating the progression from introductory to advanced levels.
5. Listing of courses, identifying which are required.
6. Process by which syllabi are reviewed and approved to ensure that 1) course learning outcomes are described and are linked to program learning outcomes; 2) materials are current; 3) pedagogy is appropriate for the modality of the course.
7. Attach three sample syllabi that are representative of the program and attach the capstone/thesis or culminating experience syllabus (if applicable). Syllabi should include specific student learning outcomes for the course, be adapted to the modality of the course, and be appropriate to the level of the degree. Syllabi should also reflect information literacy requirements and use of the library.
8. Internship requirements and monitoring procedures, if an internship is required.
9. Special requirements for graduation, i.e. comprehensive examination, service learning, etc.

B. Schedule/Format

1. Length of time that the typical student is expected to complete all requirements for the program.
2. Description of the cohort or open registration model being used. Minimum attendance/participation requirements and the provisions made for students to make-up assignments or for students who have to drop out of the cohort for a short period of time.
3. How will the institution ensure that timely and appropriate levels of interactions between students and faculty, and among students are maintained?
4. Please describe how the identity of students participating in the program will be verified. See **Best Practice Strategies for Promoting Academic Integrity in Online Education.**
5. Timeframe of courses, i.e. accelerated, weekend, traditional, etc. If the course timeframe is abbreviated, an institution must allow adequate time for students to reflect on the material presented in class. Faculty using the accelerated course format should be expected to require pre- and post-course assignments, as appropriate. The Committee will expect course syllabi for accelerated courses to be adjusted accordingly to reflect the pre- and post-course assignments, and the accelerated nature of the curriculum.
6. Sample schedule of courses for a full cycle of the program with faculty assignments, if available.

C. Admissions

1. Admissions requirements.
2. Identification of the type of student targeted and qualifications required for the program.
3. Credit policies, including the number of credits that students may transfer in.
4. Process for awarding credit for prior learning (applicable only to undergraduate level).
5. Residency requirements, if applicable.
6. Sample brochure or admissions material. Note that these materials must clearly state "Pending WASC approval" prior to Commission ratification.

D. Plan for Evaluating Educational Effectiveness

1. Plan for assessing the program at various stages in the first year, including achievement of student learning outcomes and how findings from the review will be used to improve the program. Attach the assessment plan.
2. Plan for incorporating assessment of this program into the school and/or institution's existing program review process.
3. Evaluation of the educational effectiveness of distance learning programs (including assessments of student learning outcomes, student retention, and student satisfaction) including appropriate comparisons with campus-based programs.
4. If the program is offered on-campus or in a traditional format, then it would be appropriate to include a summary of a recent program or curricular review to determine if appropriate changes have been made to the proposed program.
5. Description of how the student's ability to succeed in distance education programs will be addressed and linked to admission and recruiting policies and decisions.
6. Procedures to evaluate teaching effectiveness in the distance education modality.

Section IV: Resources

A. Faculty

1. Number and type (full-time, part-time, tenured, non-tenured) of faculty allocated to support the program in terms of developing the curriculum, delivering instruction to students, supervising internships and dissertations, and evaluating educational effectiveness.
2. Information about the balance of full- and part-time faculty members involved, and how that balance will ensure quality and consistency in instruction and advising.
3. Analysis of the impact that the proposed program or change will have on faculty workload for all involved in the program, including teaching, research, and scholarship. Who will teach courses no longer being taught by the faculty reassigned to this program? What will be the maximum number of students that each faculty member can advise?
4. Preparedness of faculty to support the modality of instruction. Are faculty development opportunities available? Include any faculty guidelines for online instruction.
5. Overview of the key credentials and experience of primary faculty responsible for the program. Include abbreviated vitae (3-5 pages) that demonstrate the most current activities in relationship to the program (scholarship, teaching, etc.).

B. Student Support Services

1. Assessment of student support needs including, but not limited to:
   a. Ongoing academic advising and academic support
   b. Financial aid advising
   c. Career placement services
2. Availability of support services for students and faculty, including helpdesk hours.

C. Information Literacy and Library Resources

1. Description of the information literacy competencies expected of graduates and how they will be evaluated.
2. Description of how library resources will be used in the curriculum.
3. Description of what staffing and instructional services have been put in place and what library and informational resources are available to students and faculty, onsite and remotely, in support of this program. Include a description of the library's information literacy program.
4. If additional information literacy and library resources are deemed necessary, specify what these resources are and detail the institution's long-term financial commitment to implement this program.
5. Access to library systems (local, national, or global), electronic services, Internet, information utilities, service providers, and document delivery services for both faculty and students.

D. Technology

1. Description of the institution’s technological capacity to support teaching and learning in the proposed program.
2. Description of the institution’s provisions for students in the proposed program to gain full access to course materials.
3. Description of the level of technology proficiency expected of students and faculty.
4. Description of how students will receive training on how to utilize program required

technology.

5. Description of how the institution will ensure business continuity during system failures (major or minor) or scheduled service interruptions.
6. Description of the provisions available to faculty to ensure that the enrolled student is the student completing the coursework. See **Best Practice Strategies for Promoting Academic Integrity in Online Education.**

E. Physical Resources

1. Description of the physical resources provided to support the proposed program(s) and the impact of the proposed change on the physical resource capacity of the institution. This includes, but is not limited to, the physical learning environment -- classrooms, study spaces, student support areas.

F. Financial Resources

1. Assessment of the financial viability and sustainability of the program including:
   a. Narrative describing all start-up costs for the institution and how the costs will be covered (including direct program cost and institutional indirect cost). Costs for licensing, hardware, software, technical support, training for faculty and students, and instructional design should be included.
   b. Total cost of the program to students, including tuition and any special fees.
   c. Financial impact of the change on the institution including evidence that the institution has the capacity to absorb start-up costs. If the institution has incurred a deficit in the past three years, supplemental information describing the financial capacity of the institution to start and sustain the new program(s) is required.
   d. Statement of the minimum number of students per year necessary to make the program financially viable. The budget should reflect anticipated attrition and should include plans to respond to low enrollment.
   e. Budget projection, for at least the first three years of the proposed program, based on the enrollment data in the market analysis and including projected revenues and costs. The budget should include all budgetary assumptions.

Section V: Teach-out

A. Teach-out

1. Teach-out plan detailing how students who begin this program will be able to finish if the institution determines that the program is to be closed. Please see WASC's **Policy on Teach-Out Plans and Teach-Out Agreements.**

Appendix E: E-mails from Professors Burkhard Militzer and Geoff Marcy regarding "The Planets" (EPS N12/Astronomy N12)

Dear colleagues,

Online teaching appears to be promising to some and controversial to others. Geoff Marcy and I have just completed teaching "The Planets" online for the first time and I would like to share my experiences with you in addition to Geoff's remarks below.

Last fall, Geoff and I were approached by the chairs in Astronomy and EPS to offer an online version of the very successful course "The Planets" that has been jointly offered by the two departments for many years. The goal of offering an online course in addition to our face-to-face class was to reach out to a large number of non-science majors who spend the summer off campus but have extra time to fulfill requirements. That is where I see the positive side of this class. Students who would otherwise just be working can now in addition make progress toward their degrees. Nobody we spoke with suggested replacing our face-to-face course but I will compare the two below. As far as motivations go, there is also some financial benefit to both departments (equivalent of 30 phone lines per year, according to my estimate).

It took the committee on courses three sessions to approve our online course but once this hurdle was taken, we started advertizing. After delivering 270 color flyers to dorms on campus, we managed to increase the enrollment from fifty to over a hundred. Then the actual course preparation started. The course consists of pre-recorded lectures, threaded discussions, online and written homework as well as office hours. We used same textbook as in the face-to-face class, "The Cosmic Perspective".

When we worked with the online teaching team at the UC Extension, we were explicitly told not to include any real-time interaction in the course because it would reduce enrollment. Not surprisingly, we ended up with many students who had plenty of other commitments and unusual difficulties completing assignments on time. Travel and difficulties accessing the internet contributed to this problem. This was one reason for the substantial amount of email traffic that Geoff describes below (~320 per month) in addition to us having to deal with the logistics of an online class for the first time.

1. Online Lectures
Geoff and I sat down in front of our computer and recorded all our PowerPoint lectures again for the online delivery. We produced video files based on our slides that included our explanations, some animations, cursor movement and whatever we decided to draw on the screen. This was a lot of work but also fun. It was Geoff's idea to introduce "Star talk" that would bear some accidental similarities to some radio show. Of course Geoff could never remember last week's show. Adding music and sound effects to the recordings was our attempt to make it more appealing to students (A brief section of "We will we will rock you" concludes the lecture on earthquakes.) Here are two examples:

http://militzer.berkeley.edu/L21.mov
http://militzer.berkeley.edu/L.mov

Initially we were told we could only broadcast static slides and audio, which is of course a problem when you want to describe features on Mars. After getting software advice at the Miami University at Oxford, Ohio, and producing a sample recording, I convinced the Extension staff to allow us to use screen-recording software.

I would say our lectures are well done. The content is the same as in our face-to-face class but the interactive part is missing. Students do not see us perform in real time, which is far from optimal but is a compromise I am willing to make in order to reach out to more students in an online setting. (I am listing to CDs way more often than I go to concerts but admittedly all classes that helped me become what I am were done in real time.) In our face-to-face class, only a few out of 200 students use the chance to ask questions anyway. More surf the internet while we lecture already;=)

We had three excellent guest lectures by Roland Burgmann, Bruce Buffett, and Paul Kalas. Those were recorded in the classroom during the spring 2010 course. Thank you very much to all three for agreeing to be videotaped.

The online format cannot allow us to provide lecture demonstrations in the same way. Instead of touching the meteorites in our collections, students listen to my video recordings that we prepared in a two-hour session in the lecture hall. This is useful but not nearly as memorable as students holding their ears shut while one is firing off a fire extinguisher to demonstrate momentum conservation.

http://militzer.berkeley.edu/lecture_demos/slides/DSC_0110.html

2. Threaded Discussion
Here is where I see the biggest difference between an online and a regular class. In a threaded discussion (or chat) as opposed to the conventional weekly discussion sections, students were required every week to post their answers to discussion topics such as "Discuss how geological processes will affect the evidence of our current civilization in 100 million years". Students were asked to post one or two paragraphs that would be graded and determined 15% of their final grade. Students were also asked to write one reply to a fellow student's postings.

This worked best when we asked them to post images and explanations that they found on GoogleMars. Students posted wonderful images and some said they spent a whole night on Mars. I wrote over 20 detailed replies to students' images but was disappointed to see how few responses I received. Most students had already moved on to the next assignment and were no longer interested in spending time on Mars. I cannot blame them because I might have done the same. They simply followed the online schedule. However, I can see how they felt when nobody chose to reply to their postings. Since we only require one reply many postings do not draw one.

I have two issues with this form of online discussion. First we cannot ask very specific science questions like "Explain how the Greenhouse effect works" because as soon as the first student posts the answer the others see it. More importantly there is no back and forth discussion. It is hard to say if they actually understood the issues or copied texts from elsewhere.

If online teaching is to play a more prominent role in university teaching then having an interactive component will be essential. Since we already have wonderful software tools that allow us to have group discussions with audio and video, file and screen sharing, there is no longer a need for instructors and students to be at the same place. However, the value of interactive teaching has not disappeared. On the contrary, since so much is prerecorded the interactive part will have to be carefully constructed to compensate for the lack of human communication.

3. Electronic and written homework
Every week students had to do homework with the online system MasteringAstronomy. It worked well. Geoff provides more details below. I made sure that we still had written homework submitted by email in order to develop skills that a machine cannot evaluate. Students had to submit one set of calculations, submit homework with images from GoogleMars, and write an essay about a future space mission to visit a distant moon in our solar system. Every time we got wonderful essays that way.

4. Electronic office hours and email questions
As Geoff describes below, very few students attended the weekly online office hours of our GSIs. Those who did achieved significantly higher homework scores. In our face-to-face class this is higher and I attribute this difference to online nature of this class. Summer students are busy but there also appears to be a barrier to seek advice from someone they have never seen.

5. Exams
We constructed two online midterm exams. What we did not fully understand until after the first midterm was that we cannot effectively restrict access to Google and the textbook during the midterm exams. So it is probably best to allow it in the first place and to construct exam questions accordingly. We also had a disproportionate number of cheating students who submitted identical answers. Below Geoff describes the effort that went into dealing with it.

The final exam was unusually chaotic and needs to be handled differently next year. Given the nature of the course, students are allowed to take the exam with a proctoring service anywhere else in the world. Handling exams coming back at different times and in different quality is a challenge. At the moment some missing final exams are preventing us from submitting the grades of all students.

Summer Extension also needs to develop a mechanism to prevent final exams from being scheduled at the same time. We had an unusual number of students with conflicts because our exam overlapped with two others by accident.

The Extension staff asked us to offer an alternate final exam date but then did not keep accurate record of who would attend the regular, the alternate, and a proctored final exam. Central Scheduling was not able to reply to our request for a room for the alternate exam.

6. The online system Angel
The Extension team relies on the online classroom system Angel to deliver all course materials

to summer students. This is essentially a more sophisticated version of Sakay's bSpace. Angel has more ways to post course materials, provides the framework for threaded discussion and allows one to deliver and grade online exams.

While I have little preference what kind of online system we use to supply our materials to students, I share some of Geoff's concerns that the Angel classroom is full of unnecessary details. This needs to change.

Thank you for reading this all the way to the end. I think we learned a lot and we able to handle some things better next year when we anticipate a larger enrollment.

Best wishes,

Burkhard

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[Received by OGDWG August 17, 2010]

Dear Faculty,

Chair Imke de Pater asked me to prepare a brief report about the online course, "The Planets" (N12), that professor Burkhard Militzer and I taught this summer during 8 weeks. I have no pedagogical expertise, so I'll just report what I saw and offer an untrained assessment.

Abstract:
Our course on "The Planets" consisted of PPT "lectures", online homework, chat rooms, two midterms and a final exam. The course lacked visual contact between student and professor, and between student and GSI. The logistics of running an online course were more burdensome than for a face-to-face course, necessitating multiple email threads per day. Every issue of late HW, misunderstood webpages, grading issues, or the logistics of midterms had to be solved by numerous emails that converge slowly. Burkhard Militzer sent me 160 emails in the past month, and I sent him a comparable number of emails, all to organize the course. Cheating on the midterms was rampant. Nine different students were caught, each requiring extensive email admonishments and formal university dispositions, all carried out by email because the cheating students were off-campus. On exams, there was no way to prevent students from consulting Google or their friends. The logistics of the final exam was complex, including four different versions we were forced to construct: in-class, proctored from afar, one alternate (make-up) date, and one for special needs students. We had to collect ~30 exams by FAX, coming from all over the world, many arriving late or not at all. We still haven't received some of them: I don't know what we'll do. Tracking down late or missing exams, all by email, was a logistical headache. Authenticating authorship on exams for 100 students located all over the

world was difficult.

On the final exam, 25% of the students did extremely poorly, obviously never "connecting" with the course, neither reading the book nor watching the online "lectures". About 15% of the students did very well, offering thoughtful answers to questions. A vast sea of 60% of the students performed at the "C+" level on the final exam as if they were going through a rote exercise, with no apparent depth or interest.

Without real-time lectures nor even videos, the students didn't see a scientist in the flesh, getting instead a PPT and a voice-over. They didn't see a professor pacing the floor over multi-step logic, comparing interpretations at the frontier, nor finding beauty in physical explanations. In the end, the course seemed anemic, uninspiring to both the typical student and to me.

Further Details:

1. Online Courses at Berkeley
Online education at UC Berkeley is being promoted by some administrators at UC Berkeley as a way to offer a Berkeley education to a wider demographic audience and to make money.
As stated by the UC Berkeley online website, "Control, choice, and flexibility are key components of asynchronous learning. You decide when to attend class, logging on from the location of your choice and, in most cases, complete assignments at your own pace...", as explained here:

http://extension.berkeley.edu/online/

A small sampling of the controversy recently appeared in the S.F. Chronicle:
http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/07/11/MN581EAQR0.DTL

I have not heard anyone state that students learn more in online classes than in face-to-face courses.

Everyone I've asked, whether they are for or against online classes, agrees they are inferior ways for students to learn.

2. The course, "The Planets"
In our summer course, Burkhard Militzer and I stored our lectures as live powerpoint presentations, capturing the animation and cursor motion in the PPT. But we were not videotaped, nor were the GSIs. The students essentially never saw us lecturing.

Homeworks were web-based, in "MasteringAstronomy" that has hundreds of excellent astronomy questions (many being graphical or animated, and therefore conceptually rich) associated with each chapter in the book (The Cosmic Perspective). These worked well and seamlessly, and are automatically graded. The HW is graded real-time, giving the students real-time feedback, and chances to reconsider their answers upon further cogitation. In addition, three assignments required the students to construct an essay, and email them in. This was logistically harder, but offered some rich opportunities such as their commenting on the

merits/costs of space travel or the geomorphology visible in GoogleMars.

3. Cheating on Midterms:
We had two online midterms (graded online). The students took them online from where ever they were in the world. We did not realize that the students would naturally use GOOGLE to answer the questions on the midterm. Having failed to tell them that GOOGLE was off-limits we were shocked when then midterms came back with articulate, sophisticated answers extracted and paraphrased from the web. On the two midterms, 9 different students were caught cheating. It took a major effort to email each of them and to address their cheating via email.

For two of the cheating students on Midterm #1, I met them in person with the Director of the Haas Business School Undergrad program, getting them to sign an admission of cheating. But after all of that arranging and formality with the university, those two cheating students dropped the course anyway, making all my effort a complete waste of time.

On the second midterm, seven students were caught cheating. This time, two of the students insisted that they didn't cheat, even though their exams were identical and they admitted "discussing the exam questions" on the phone during the midterm. This level of obstinate denial that they cheated despite verbatim identical answers was unprecedented in my experience as a professor. I've never seen students construct a paradigm of ethics in their head that rendered direct copying from each other or from the web as acceptable behavior during an exam. One student emailed me twice saying that we professors had failed to state explicitly in "the guidelines" that consulting with other students was not allowed during exams. She insisted that she did nothing wrong and demanded that we not deem her work cheating. The online course apparently generated a sociology that behind the computer curtain anything was OK, as if the online course was separate from real life.

4. Course Management by the "Angel" website:
The logistics for the course were supposed to be handled by a web-based online system called "Angel":

https://elearning.berkeley.edu/default.asp

ANGEL is a web-based course management and collaboration portal that enables educators to manage course materials and to communicate with their students. This web-based system was supposed to provide a single repository for the PPTs, and homework assignments, chatrooms, email exchanges, and grading. ***I attach a major page of that Angel web site.***

I found the ANGEL website to be very poor. Every webpage contains dozens of links with cryptic words that you might click on. There are eight major domains that I never distinguished. For example, one is "Management Console" (shown attached). That domain (of the 8) itself has 20 different links, few making immediate sense, such as "Backup and Restore", "Export Console", "Keyword Manager" and so on. As an instructor, you have to learn what these links represent, and each student does too.

But our course consists merely of prepared PPTs and homework assignments through

MasteringAstronomy so I never understood why the multi-dimensional complexity of "ANGEL" was necessary. I never learned how to navigate it successfully, after 8 weeks of teaching the course. Indeed, I needed help with Angel just to grade the Midterm #2.

5. Chat Rooms: Replacements for Discussion Sections

The Online Administrators required that the GSIs hold discussion Chat Rooms, supposedly to replace Discussion Sections. In these chat room sessions at predetermined times, the two GSIs sat at their computers and waited for students to enter the chat room and send a question or comment. However, only one or two students would participate in these sessions. This participation level is far fewer than the usual ~20 students that attend a Discussion Section in a regular Berkeley Astronomy course. Moreover, the GSIs reported that those one or two students in the chat room often didn't come prepared with good ideas, so the sessions were sparsely populated with a poverty of intellectual interaction.

6. Emails: 320 per month

The logistics of keeping ~100 students scattered around the world organized was a major task. Of the 100 students some 25 of them had some obstacle to turning in homework on time or doing the midterm on time. For each of those troubled students, many emails had to be exchanged to accommodate the student.

Online courses carry an extra burden for professors in accommodating the student who specifically took an online course because of difficulty being in Berkeley, such as because of a job far away. Often they lack consistent internet access, or lack the block of time to take a midterm. Family outings seem to compete with the online course. The UCB Online program asks professors to cater to those special needs, making the online course more accessible. So, our online course was riddled with requests for accommodations for late homeworks and late midterms. At every turn, the Extension and Summer Session people urged us to take the extra hour and arrange special treatment for such students.

The logistical challenge of our online course is best quantified by the email traffic. In the past month (30 days), Burkhard Militzer sent me 160 emails about the organization of the course. Similarly, I sent him a comparable number of emails in return, making a total of ~320 emails between the two of us, within one month. This email traffic is just the numerical count of emails, not the time spent doing something about each issue. The crush of logistics was extraordinary and demoralizing. The GSIs were also trampled by this email stampede, all necessitated because so many special arrangements had to be made for students' particular issues.

7. Credit for Teaching an Online Course?

I was told that by teaching an online course in the summer, I would not have to teach during the Fall semester. But in the real world, forces act in the other direction. A Chair faces challenges to meet the teaching needs of the
Department. Also, a common misconception is that teaching an online course is easy. After all, the professor already prepared and taped all the lectures. With the course already prepared, that work may be dismissed as a job already done.

Thus, when a Chair sees that Professor XYZ isn't teaching in the Fall, and a sudden need arises

for an instructor of a course, Professor XYZ appears available to fill in. Such is the case for me. I prepared all spring (taping lectures) for the summer online course. Now, I just spent my summer with this extremely time-consuming online course. I'm exhausted. But now I have to prepare and teach a course (the Astro 122 Lab) this fall.

I cannot bail out on teaching the online summer course for the next two years: the prepared lectures necessitate my participation for two more years, otherwise the investment by the Summer Session Online Administrators will have been wasted. I'm stuck teaching Fall, Spring, and Summer for the indefinite future. The cautionary tale is that when you teach a summer online course, you are likely to be tapped to teach a regular-semester course both semesters anyway.

8. Summary

This online course was burdened by bureaucracy and logistics. The students couldn't experience the personal inspiration of their professors who were largely invisible. Cheating was widespread. We wonder if we adequately conveyed the key messages, namely, the exquisite beauty of the universe and the value of scientific reasoning. The educational mission of the U.C. system not brilliantly accomplished. Frankly, this was the worst teaching experience of my life in 25 years. I truly enjoy teaching. It was frustrating to have NOVA and The History Channel ask me for video interviews while my students got only powerpoint slides. I will work with the Summer Session and UC Extension to ponder the next steps for UC Berkeley Online courses.

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