AGENDA
GRADUATE COUNCIL MEETING
Thursday, October 17, 2013
9:10 - 11:00 AM
ACADEMIC SENATE CONFERENCE ROOM
ROOM 220 UNIVERSITY OFFICE BUILDING

Action
9:10 – 9:15
1. Approval of Minutes of September 26, 2013 meeting
   Attached

Information/Discussion
9:15 – 9:20
a. Chair of the Graduate Council
9:20 – 9:25
b. CCGA Representative
9:25 – 9:30
c. Graduate Student Council Representative(s)
9:30 – 9:40
d. Dean of the Graduate Division

Action
9:40 – 9:45
2. Announcements
   a. Chair of the Graduate Council
   b. CCGA Representative
   c. Graduate Student Council Representative(s)
   d. Dean of the Graduate Division

3. Courses and Programs Subcommittee
   A. Approval of Courses:
   1. ANTH 281 – Anthropology of Humanitarianism – NEW
   2. ART 293 - Directed Individual Studio Production – NEW*
   3. BCH 240 - Special Topics in Biochemistry - CHANGE
   4. BIEN 223 – Engineering Analysis of Physiological Systems – CHANGE
   5. BIEN 223V - Engineering Analysis of Physiological Systems - NEW
   6. BIEN 264 – Biotransport Phenomena – CHANGE
   7. BIEN 264V - Biotransport Phenomena - NEW
   8. BMSC 231M - Foundations of Medicine I: Clinical Aspects – DELETE
   9. BMSC 232M - Cardiovascular, Renal, and Respiratory Sciences I: Clinical Aspects – DELETE
   10. BMSC 233M - Gastrointestinal, Endocrine, and Reproductive Health I: Clinical Aspects - DELETE
   11. BMSC 234M - Musculoskeletal Medicine: Clinical Aspects – DELETE
   12. BMSC 235M - Clinical Neurosciences I: Clinical Aspects – DELETE
   13. BMSC 236M - Foundations of Medicine II: Clinical Aspects – DELETE
   14. BMSC 237 - Gastrointestinal, Endocrine, and Reproductive Health II – DELETE
   15. BMSC 238 - Clinical Neurosciences II – DELETE
   16. BMSC 239 - Cardiovascular, Renal, and Respiratory Sciences II – DELETE
   17. BMSC 240 - Integrative Human Biology and Disease – DELETE
   18. CWPA 268 – Writing the Half-Hour Television Comedy – NEW
   19. EDUC 240 – Educational Psychology – CHANGE
   20. EDUC 246 (E-Z) – Research on Education of Exceptional Children – CHANGE
   21. EDUC 259 – Research Seminar – CHANGE
   22. EDUC 262 – Achievement Motivation – CHANGE
   23. EDUC 282A – Curriculum Theory and Instructional Processes: Mathematics and Science – CHANGE
   25. EDUC 285 (E-Z) - Curriculum Theory and Instructional Processes – CHANGE
   26. EDUC 335A - Supervised Teaching in Special Education – CHANGE
   27. EDUC 336B - Supervised Teaching in the Elementary School – CHANGE
   28. EDUC 338A - Intern Teaching in the Elementary School – CHANGE
   29. EDUC 344B - Multiple Subjects Credential Seminar – CHANGE
30. EDUC 348A - Single Subject Credential Seminar – CHANGE
31. EDUC 376A - Supervised Teaching in the Secondary School – CHANGE
32. EDUC 378A - Intern Teaching in the Secondary School – CHANGE
33. ENGR 200 - Engineering in the Global Environment – CHANGE
34. ENGR 200V - Engineering in the Global Environment - NEW
35. ENGR 201 - Technology Innovation and Strategy for Engineers – CHANGE
36. ENGR 201V - Technology Innovation and Strategy for Engineers - NEW
37. ENGR 202 - Introduction to Systems Engineering – CHANGE
38. ENGR 202V - Introduction to Systems Engineering - NEW
39. ENGR 203 - Principles of Engineering Management – CHANGE
40. ENGR 203V - Principles of Engineering Management - NEW
41. ENSC 206/POSC 206 - Environmental Policy and Law – CHANGE
42. ETST 204 - Critical Race Perspectives in Latino Education – NEW
43. MATH 302 - Apprentice Teaching and Professional Development – CHANGE*
44. RLST 403 - Directed Professional Development – NEW*
45. SOC 258 - Current Research in the Sociology of Families and Loving
   Relationships – DELETE
46. SOC 260 - Research Practicum on the Evolution of Settlements and Polities –
   NEW
47. SOC 284 – Sociology of the Family – DELETE
48. SOC 285 (E-Z) – Topics in Social Psychology – CHANGE

*Course is related to a new program or program change on the agenda.

9:45 – 10:15

B. Approval of new Program proposals:
   1. Designated Emphasis in Latin American Studies
   2. Masters of Public Policy

C. Approval of Program Changes:
   1. English – Abolishing Terminal M.A. Program
   2. Computer Science – Catalog Updates for 2013-14
   3. Economics Program Change request
   4. MFA in Visual Art – change in unit and course requirements –
      See course ART 293 in CRAMS on agenda
   5. Proposed changes to Religious Studies graduate program – addition
      of Professional Development – see course RLST 403 in CRAMS on agenda
   6. Change Mathematics Masters and Doctoral degree requirements to include
      Professional Development training – see course MATH 302 in CRAMS on agenda

Discussion & Action
10:15 – 10:20
4. Revised Attendance Policy

Discussion
10:20 – 10:40
5. Graduate Council memo to Sociology – June 18, 2013

Discussion & Action
10:40 – 11:00
6. Graduate Program Reviews
   A. Plant Biology response to F&R
   B. Biomedical Sciences response to F&R
Present:
Lynda Bell, History, Chair
Ertem Tuncel, Electrical Engineering, Vice Chair
Rick Redak, Entomology, Secretary
Wendy Ashmore, Anthropology
Malcolm Baker, Art History
Chris Chase-Dunn, Sociology
John Kim, Comparative Literature & Foreign Languages
Rene Lyslof, Music
Daniel Schlenk, Environmental Sciences
Jing Shi, Physics
Jorge Silva-Risso, SoBA
Joe Childers, Graduate Dean (ex-officio)

Absent:
David. A. Johnson, School of Medicine
Rollanda O'Connor, Graduate School of Education (On leave Spring quarter)
Jianzhong Wu, Chemical/Environmental Engineering – resigned prior to meeting
Jingsong Zhang, Chemistry
GSA Student Reps.

Guests:
Linda Scott, Graduate Division

Approval of Minutes
The minutes from the June 6, 2013 meeting were approved as written after specific committee members’ names were removed.

Chair’s Announcements
Chair Bell informed the committee that the proposal for a Masters of Public Policy in the new school of Public Policy will be forthcoming by the end of the month. Courses & Programs Subcommittee will review this proposal first. Chair Bell mentioned that this proposal needs to be somewhat expedited so that it can go to CCGA for final approval. Chair Bell reviewed the first draft of the proposal over the Summer and provided suggestions to Anil Deolalikar, Dean of the School of Public Policy. Chair Bell has now passed this draft on to John Kim, CCGA representative, who is communicating with CCGA.

Announcements
Graduate Dean Joe Childers – Graduate Division has received the highest number of SIR’s ever. In the past, the highest number was 707; last year 767 were received; and this year 830 were
received. A lot of the increase is due to new SoBA and Engineering programs, the significant increase in Ph.D. numbers, and programs hitting their targets.

Dean Childers has been communicating with the School of Medicine about their proposed MD/Ph.D. program. Dean Childers has advised that this proposal not go to CCGA. It will not be a stand-alone program; it will be a dual degree. There will be a MOU between the two programs to determine what is needed and what will be weighed. MOU’s can be drafted at the campus level in consultation with comparable programs at other UC campuses, and can then be reviewed and approved by the Graduate Council. This should not require any course work; it will require putting together a plan in the Ph.D. program so that students can finish fairly simultaneously.

The system is in the midst of beginning negotiations with the TA unions and academic student employees. The University has not made any offers yet; as they are still waiting to hear what the demands are. Part of the problem is that the students are adamant about controlling the process and therefore, things are not progressing quickly. Soon the system will make an offer publicly announcing what they are willing to give up. The system is not willing to budge on Non-Resident Tuition (NRT).

Graduate Division will be providing a report to the Graduate Council at the end of the academic year about the implementation of the Graduate Academic Appeals policy. Graduate Division will be closely monitoring graduate programs to confirm they are in compliance with Senate regulations. The report will include the number of appeals, how they were handled, etc.

Graduate Division will also be working with all graduate programs this year on developing written procedures that govern the administration of their exams and exam appeals. These procedures need to be written into graduate student handbooks so that students and faculty are aware of the procedures.

WASC – When WASC visited our campus a few years ago, their original focus was learning outcomes, focused on undergraduate education. Dean Childers explained that graduate education is only about learning outcomes. Graduate Division will be asking each graduate program to write up what learning outcomes they are using so that Graduate Division can confirm that programs are in compliance. Programs will be required to append their program’s last assessment and implement the plans they have developed.

Graduate Division is currently working on an Alumni Survey.

2013-14 Conflict of Interest Statement
Graduate Council voted unanimously to adopt the 2012-13 Conflict of Interest Statement for 2013-14.

Bylaw Change
Chair Bell discussed the proposed bylaw change and the reason for the revision. It no longer makes sense to say that Graduate Council exercises regulative and coordinating functions in the Graduate Division of the Riverside campus. Graduate Council voted unanimously to approve the bylaw change as it was presented.
Graduate Council Attendance Policy
Chair Bell presented the attendance policy she drafted in response to the attendance problems Graduate Council has had in the past. She mentioned that the committee can vote on this policy later after further review. A member suggested adding language about attendance on subcommittees as well as language about participation rather than attendance. Chair Bell will revise the policy and the Council can vote on it at the October meeting.

2013-14 Graduate Council Subcommittee Appointments
Chair Bell discussed subcommittee appointments and indicated that committee members would receive subcommittee appointment letters via email in the coming days.

Chair Bell discussed the eleven outstanding graduate program reviews that the Council is trying to close out. Professor Wendy Ashmore has agreed to focus on closing out all of the outstanding program reviews instead of serving on a new program review subcommittee this year. Professor Rollanda O’Connor will be back-up for the Chair of the Courses and Programs Subcommittee.

Graduate Council 101 Presentation
Chair Bell gave a presentation about Graduate Council, how it operates, and tasks the committee is charged with. Dean Childers gave the committee further information about the Fellowships Subcommittee and what they do. Chair Bell asked Vice Chair Tuncel to talk with Graduate Division Associate Dean Leah Haimo about revisions to the Call for Fellowships. Professor Chris Chase-Dunn discussed the Courses and Programs Subcommittee, how it operates, and the duties the subcommittee is assigned.

Graduate Program Reviews scheduled for 2013-14
Physics may be reviewed the first or second week in April, 2014. Other review dates have been tentatively set.

Chair Bell will remind programs with responses due in October, November, and December, as well as members who have duties to complete in order to close out the outstanding reviews.

Chair Bell suggested that the Council begin drafting Findings and Recommendations (F&R) prior to receiving the program’s initial response (corrections to errors of fact) to the extramural reviewers’ report. The corrections received are usually very minor and can be easily integrated into a draft F&R. This practice would speed up the review close out process.

Chair Bell also suggested providing programs under review with good vision statements to use as templates.

Sarah Miller will send an informational email to the Courses and Programs Subcommittee with all necessary information.
Proposal
Designated Emphasis in Latin American and Latino Studies
University of California, Riverside
Spring/Summer of 2013

Justification

UCR has exceptional faculty resources in Latin American and Latino Studies, with fifty-two faculty members dedicated to Latin American Studies from almost every department in CHASS and key departments in CNAS and another dozen faculty whose research focuses on U.S. Latino experience. These faculty are involved in training more than eighty graduate students working in the field. These research and teaching commitments align with UC Riverside’s federal status as a Hispanic-serving Institution.

Latin American Studies at UCR is an interdisciplinary and interdepartmental research and instructional program servings as an active center for research collaboration and innovative exploration of issues critical to California, neighboring states, and to Latin American communities in the US and around the world. Latin American Studies continues to be a dynamic and pressing area of study including: globalization, transnational migration, economic and environmental crises and transformations, international activist movements, law and the state, religious expression, race and racialization, emerging cultural phenomena, international activist movements, and transnational migration.

The Latin American Studies body of faculty and students reflects California and UCR’s diverse cultural and ethnic composition, and is therefore responsive to one of the great strengths of our campus. Our students, faculty, and institutional resources have positioned us as a critical nexus between UCR and the region it is intended to serve.

The Ph.D. Designated Emphasis (DE) in Latin American Studies fosters communication, collaboration, and exchange with scholars across many departments within the university, and at the national and international levels. Our faculty are active researchers in the social sciences, humanities and natural sciences. Students pursuing the D.E. will benefit from the prominence of the faculty combined with a range of courses and research opportunities.

Requirements:
The Designated Emphasis is a rigorous course of study requiring students to demonstrate focused coursework and research in the field with three core requirements:

1) The program requires the completion of 4 graduate courses or 16 units (with at least one of these courses emphasizing U.S.-Latino experience and at least two with a primary axis of Mexico, Central American, South America, or the Caribbean). These courses must be taken in at least two different department and will be selected from the list below. Courses used to satisfy departmental Ph.D. requirements may not be applied to the D.E.
(although courses taken within the student’s home department not required for the Ph.D. may be applied). The GPA for coursework cannot be below a 3.0.

(2) The program also requires the submission of a research portfolio within one year after the quarter in which the student files for candidacy. The portfolio, to be reviewed by a standing committee of LAS faculty, will demonstrate significant research in the field, include two research papers and syllabi from the four courses accompanied by an introductory self-statement (of no more than 1000 words) articulating the particular research emphasis and its depth and breadth of engagement with the field along with an explanation of specific expertise and emphases.

(3) Finally, the program requires language certification through examination or coursework in a Latin American language: Spanish, Portuguese, Kreyol, or an indigenous language. Evidence of language certification must be included in the research portfolio (passing of a written translation exam, a full length (15pp+) research paper written in the language, or two or more years of language courses at the college or university level).

Curriculum committee:
Jonathan Ritter (Director, Latin American Studies, Associate Professor Department of Music)
Jennifer Hughes (Associate Professor, Department of History)
Marta Hernandez Salvan (Assistant Professor, Hispanic Studies)
Jennifer Najera (Assistant Professor, Department of Ethnic Studies)

Courses:
The following graduate courses currently listed in UCR’s course catalog satisfy the course requirements for the Latin American Studies Designated Emphasis. Departments, individual faculty, and graduate students may petition the Latin American Studies Curriculum Committee for the inclusion of additional courses to this list by providing a copy of the syllabus.

AHS 260 Seminar in Latin American Art
ANTH 209 Field Course in Mayan Archeology
ANTH 218, Ancient Maya History and Religion
ANTH 251 Theory and Method of Mexican Ethnography
ANTH 264 Codices of Ancient Mexico

ECON 260. Theories of Economic Development (4)
ECON 261. Contemporary Development Strategies (4)
ECON 262. Project Evaluation in Developing Countries (4)
ECON 264. Topics in Economic Development (4)
ECON 265. Agricultural and Rural Development (4)

ETST 223 Chicano Expressive Cultures
ETST 244 Borders, Borderlands, and Chicana/o Studies
ETST 245 Theories in Chicana/o Studies
ETST 246 Chicano Historiography

HIST 206A. Materials for Latin American History: Colonial Period to 1820 (4)
HIST 206B. Materials for Latin American History: 1820 to the Present (4)
HIST 285B. Seminar in Latin American History (4)
HIST 285A. Seminar in Latin American History (4)

MUS 271. Area Studies Research in Music*
MUS 263 Special Topics in Musicology*

POSC 278 Seminar in Latin American Politics
PORT 201. Brazilian Literature

SOC 243 (E-Z). Special Topics in Sociology* (4)
SOC 261. World-Systems Analysis
SOC 265 (E-Z). Topics in Race and Class Inequality
    I. Chicano Sociology;
    J. World Inequality;
    R. Racial, Ethnic, and Immigrant Families
SOC 282. International Migration

SPN 257. Seminar in Hispanic Civilization
SPN 258 (E-Z). Genres of Hispanic Literature
SPN 270 (E-Z). Latin American Literature
SPN 272. Seminar in the Literature of a Specific Latin American Country
SPN 273A Literatures and Cultures of Colonial Latin America
SPN 278 Studies in Latin American Literatures and Cultures
SPN 279 Studies in Spanish Lit and Culture
SPN 301 (Professional Courses) Teaching Spanish at the College Level
Coversheet for Request for Approval  
To Modify Graduate Program Degree Requirements

<table>
<thead>
<tr>
<th>Program</th>
<th>English</th>
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<tbody>
<tr>
<td>Department/Academic Unit/School</td>
<td>English</td>
</tr>
<tr>
<td>Date</td>
<td>6/14/13</td>
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<tr>
<td>Proposed Effective Date</td>
<td>fall 2014</td>
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<thead>
<tr>
<th>Faculty Contact:</th>
<th>Deborah Willis</th>
<th>Email:</th>
<th><a href="mailto:deborah.willis@ucr.edu">deborah.willis@ucr.edu</a></th>
<th>Phone:</th>
<th>21458</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared by:</td>
<td>Tina Feldmann</td>
<td>Email:</td>
<td><a href="mailto:tina.feldmann@ucr.edu">tina.feldmann@ucr.edu</a></td>
<td>Phone:</td>
<td>21454</td>
</tr>
</tbody>
</table>

**Proposed Modification(s) (please check all that apply)**

- [x] Admission requirements
- [ ] Course requirements
- [ ] Unit requirements
- [ ] Examination requirements
- [ ] Professional Development Plan
- [ ] Time-to-degree
- [ ] Other (please describe):

1. Proposal must include a cover letter from the Dean, Associate Dean, Chair, Director or Program Advisor as appropriate, taking care to briefly describe the proposed modifications and justification for the request.

2. Attached proposal must include the proposed modifications as formatted in the example below.
   The existing requirements must be on the left column, and the proposed revisions on the right.
   Proposed additions must be **underlined** and deletions must be **stricken**.

<table>
<thead>
<tr>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert existing program requirements on this</td>
<td>Insert proposed requirements on</td>
</tr>
<tr>
<td>side of the table and strike the deletions.</td>
<td>this side of the table. <strong>Underline</strong> the additions</td>
</tr>
</tbody>
</table>

**Justification:** The justification should include examples such as impact on time to degree, expected impact on employment prospects, expected impact on recruitment. Please address whether current students will be permitted to switch to take advantage of the revisions. If so what will the approval process be?

**Faculty Approval Date:** Indicate the date of the faculty vote

<table>
<thead>
<tr>
<th>Department Chair / Program Director:</th>
<th>Please type name(s) as appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature:</td>
<td>Please include signature(s) as appropriate</td>
</tr>
<tr>
<td>Date: 6-20-13</td>
<td>Date signed</td>
</tr>
</tbody>
</table>

**Checklist of Required Attachments/Appendices (please check to verify inclusion):**

- [ ] Dean/Associate Dean/Chair or Program Advisor Cover Letter
- [ ] Proposal in proper table format – signed and dated as appropriate
- [x] Revised and Dated Program Summary
- [ ] Revised Catalogue Copy
- [ ] Revised Website Copy
June 14, 2013

TO: Graduate Council
FROM: Deborah Willis, Chair
Department of English

RE: Abolishing Terminal M.A. Program

At our June 11, 2012 department meeting, English Department faculty voted to abolish the terminal M.A. program in English. Our focus needs to be on our Ph.D. program. We discovered several problems with trying to maintain the terminal M.A. track: 1.) Because there is no fellowship support available from Grad Division for terminal M.A. students, applicants have a hard time financing their education. TAships are limited to our Ph.D. students. Though the terminal M.A. students often think they can afford UCR's fees, they are unrealistic about the real costs. We do not wish to exploit these students, and we do not have resources to help with their funding. 2.) Some applicants assume it is a "back door" to the Ph.D., which it is not meant to be. They get here and then are unhappy when they realize their mistake. 3.) Because we were admitting so few M.A. students, they were isolated and often felt like second class citizens. For these reasons, we find the program no longer viable and recommend that it be officially abolished and removed from the catalog. We have been discouraging applicants for several years.

Existing

Master's Degree

Proposed

[Abolish Terminal M.A.]

The Department of English also offers a terminal M.A. program for a small number of students who have the M.A. as their degree objective.

Admission - Admission is open to qualified candidates with a B.A. degree in English or a closely related field of study.

Course Work - Each student's specific program is individually structured in consultation with the graduate advisor. The candidate must
complete (with a grade of "B" or better) a minimum of 42 units of course work, including ENGL 200 (Introduction to Graduate Study in English), ENGL 296 (Master's Portfolio), and at least 36 units in other 200-series courses, excluding ENGL 280, ENGL 291, ENGL 292, and ENGL 299. Eight (8) units of 100-series courses (excluding ENGL 103 and ENGL 190) may be counted toward the 42-unit requirement with the permission of the graduate advisor.

Language Requirement—Students must demonstrate proficiency in one language other than English.

M.A. Examination—in the sixth quarter of the program, the student completes Qualifying Examination I as described in the Ph.D. program above. Following successful completion of this examination and a review of the entire student file, the graduate committee recommends awarding the M.A. degree. (Students in the terminal M.A. program who wish to change their degree objective to the Ph.D. must notify the graduate advisor before the end of their fifth quarter to request that consideration for the Ph.D. program be a part of the M.A. examination process.) The graduate committee then reviews the results of the M.A. examination and the entire student file to determine whether the student may continue into the Ph.D. program. For details, contact the Graduate Assistant, Department of English.

Normative Time to Degree—6 quarters
TO: Dr. Connie Nugent  
Chair, Graduate Council  

FR: Dr. Laxmi Bhuyan  
Computer Science & Engineering  

RE: Requested Catalog Updates for 2013-14  

June 13, 2013  

Dear Dr. Nugent:
The attached requested catalog changes were voted on and approved by the Computer Science faculty.  

The revised text adds a new statement under M.S. program course requirements. Our course requirements for M.S. include 32 units of electives, out of which 4 units (1 course) in the MS-Project-option, and 12 units (3 courses) in the MS-Thesis-option can be CS297 or CS299. However, CS297 and CS299 are only graded as S or NC. So what the faculty proposed instead is to write the following: "All courses used to satisfy these requirements (with the exception of CS297, CS299) must be taken for a letter grade." (Note: this is only needed for the MS description, in the PhD description we have a similar sentence: "All these courses must be taken for a letter grade," and there we have a sentence excluding various courses like CS297, CS299, CS270 etc. from counting against any category).  

Thank you.
PROPOSED CHANGE TO COMPUTER SCIENCE GRADUATE REQUIREMENTS

PRESENT:

Graduate Program
The Department of Computer Science and Engineering offers the M.S. and Ph.D. degrees in Computer Science. General requirements are listed in the Graduate Studies section of this catalog. Specific requirements for each degree are described below. Students enrolled prior to Fall 2008 can still follow the old Graduate Program.

Admission
All applicants must supply GRE General Test scores. The GRE subject test in Computer Science is recommended but not required. Applicants should have at least an undergraduate degree in computer science or a closely related field, but applicants who fail to meet this criterion may sometimes be admitted with deficiencies.

Prerequisite Material
Competence in the areas defined by the following UCR courses is essential to graduate study in computer science:
CS 141, CS 150, CS 152, CS 153, CS 161/CS 161L
A student who is deficient in any of these competency areas may be asked to complete the corresponding UCR course with a letter grade of at least B+, or to pass a challenge examination based on that course’s final exam with a grade of at least B+. All such remedial work should be completed within the first year of graduate study, and in all cases the deficiency must be corrected before a student can enroll in any graduate course from the same specialty area.

Core Areas
Students have considerable flexibility in selecting specialty area(s) within the program. However, the following core areas introduce fundamental concepts and tools of general interest to all students.

PROPOSED:

Graduate Program
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Core Areas
Students have considerable flexibility in selecting specialty area(s) within the program. However, the following core areas introduce fundamental concepts and tools of general interest to all students.
1. Hardware design principles: CS 203A or CS 220.
2. Theoretical foundations: CS 215 or CS 218.

**Major Specialty Areas** The department has active research programs in the following major specialty areas. A list of related graduate courses is provided for each area. Courses that qualify for the M.S. Breadth Requirement are marked with an asterisk (*).


C. Databases, Data Mining, and Machine Learning: CS 205*, CS 235*, CS 229, CS 236*, CS 272


E. Computer Networks: CS 204*, CS 237, CS 239*, CS 240, CS 257, CS 255*

F. Programming Languages, Compilers, and Software Engineering: CS 201*, CS 206*, CS 207*, CS 245*, CS 246*


**Master’s Degree**

The Department of Computer Science and Engineering offers the M.S. degree in Computer Science, after completion of the following degree requirements.

**Satisfactory completion** of CS 287 (Colloquium in Computer Science) each quarter of enrollment for full-time in-residence graduate students.

**Course Requirements** 48 quarter units of graduate or upper-division undergraduate courses are required. Students who have completed similar courses elsewhere may petition for a waiver of a required course or for substitution of an alternative course. For students interested in interdisciplinary research, individual study programs can be approved. All courses used to satisfy these requirements (with the exception of CS 297 and CS 299) must be taken for a letter grade. No course can be counted towards more than one category.
1. Core Requirement (8 units). Choose one course from two of the three Core Areas listed above, with no grade lower than B-.

2. Breadth Requirement (8 units). Two approved breadth courses chosen in such a way that together the core and breadth courses cover four different Major Specialty Areas (A to G).

3. Electives (32 units)
   a. Project Option. A student pursuing the M.S. degree, non-thesis option, may include up to 4 units of Directed Research (CS 297) towards the elective requirement. Of the remaining 28 units, at least 12 units must be approved graduate lecture courses. The remaining 16 units may include additional approved graduate lecture courses, up to 8 units of graduate seminars in CS 260–269, and up to 12 units of approved undergraduate technical electives.

   b. Thesis Option. A student pursuing the M.S. degree, thesis option, may include up to 12 units of graduate research (CS 297 or CS 299) towards the elective unit requirement. Of the remaining 20 units, at least 4 units must be approved graduate lecture courses. The remaining 16 units may include additional approved graduate lecture courses, up to 8 units of graduate seminars in CS 260–269, and up to 8 units of approved undergraduate technical electives.

Capstone Experience All students must complete a capstone experience that synthesizes and integrates the knowledge and skills obtained throughout the master’s program, according to one of the following options. It is the responsibility of the student to find a faculty member willing to supervise the master’s project or thesis, to form the faculty examining committee, and to schedule the oral examination.

a. Project Option Students must complete a research project under the guidance of a faculty member. This project will require a written report and will be presented to a committee of at least two faculty members in an oral examination.

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Capstone Experience All students must complete a capstone experience that synthesizes and integrates the knowledge and skills obtained throughout the master’s program, according to one of the following options. It is the responsibility of the student to find a faculty member willing to supervise the master’s project or thesis, to form the faculty examining committee, and to schedule the oral examination.

a. Project Option Students must complete a research project under the guidance of a faculty member. This project will require a written report and will be presented to a committee of at least two faculty members in an oral examination.
b. Thesis Option  Students must submit a master’s thesis in accordance with the general requirements of the university. The thesis is original research work, and it should demonstrate the student’s ability to study a research area, identify an open problem and make a research contribution. The thesis must be presented to and approved by a committee of at least three faculty members.

Normative Time to Degree  2 years.

Combined B.S. + M.S. Five-Year Program  The department offers a combined five-year B.S. + M.S. program, designed to allow successful UCR Computer Science B.S. graduates to complete the Master of Science degree in Computer Science in one year, by allowing up to 12 credits of coursework taken as a UCR undergraduate to be counted towards the 32-unit elective requirements of the M.S. (The courses that can be double-counted are those that are eligible to be counted as technical electives in the B.S. requirements.)

A student may apply at the start of their senior year by submitting an application to the Computer Science M.S. program, provided that at the end of junior year, the student was a UCR CS B.S. student with cumulative GPA at least 3.4 and had completed the following courses with no grade less than a B- and average grade at least 3.2: CS 100, CS 120A, CS 120B, CS 161. The application to the M.S. program must include at least two recommendation letters from UCR Academic Senate faculty members (at least one, and preferably both, CSE faculty). Submission of GRE scores with the application is recommended but not required. Matriculation into the combined program occurs in the Fall term following senior year, provided: (a) the M.S. application is accepted, (b) throughout senior year, the student is a CS B.S. major with cumulative GPA 3.4 or higher, (c) by the end of senior year, the student completes the Computer Science B.S. degree requirements.
Incoming students who are applying to the CS B.S. program may simultaneously apply for preliminary admission into the combined program provided their high-school GPA is at least 3.6, their SAT-I combined score is at least 1950, they satisfy the Entry-Level Writing requirement before matriculation, and they have sufficient math preparation to enroll in calculus upon arrival. Preliminary admission status is maintained as long as the student is a CS B.S. student in good standing with a cumulative GPA of at least 3.4. Preliminarily admitted students still need to apply for full admission in their senior year as described above.

For Computer Engineering undergraduates seeking the B.S. + M.S. program leading to an M.S. in Computer Science, please see catalog entry under Computer Engineering.

Doctoral Degree
The Department of Computer Science and Engineering offers the Ph.D. degree in Computer Science, after completion of the following degree requirements. It provides a research-oriented education in preparation for a career in research, industry, or academia and exploring both the fundamental aspects of computer science and engineering as well as their applications.

Satisfactory completion of CS 287 (Colloquium in Computer Science) each quarter of enrollment for full-time in-residence graduate students.

Course Work The course requirements for the Ph.D. degree ensure that Ph.D. students are exposed to fundamental concepts and tools (core requirement), a deep up-to-date view of their research specialty area (depth requirement), and an advanced, up-to-date view of the same topics outside their area (breadth requirement). Students are expected to complete all of these course requirements in the first two years of the program. These requirements consist of 44 quarter units of approved graduate or upper-division undergraduate courses, satisfying all four of the following course work categories. All of these courses must be taken for a letter grade, and no course can be counted towards more than one category.
Students who have completed similar courses elsewhere may petition for a waiver of a required course or for substitution of an alternative course. Units obtained in CS 270, CS 287, CS 290, CS 297, CS 298, CS 299, CS 301, and CS 302 cannot be counted in any course work category.

1. **Core Requirement (12 units).** Choose three courses from at least two of the three Core Areas described above, with no grade lower than B- and an overall core course GPA of at least 3.2.

2. **Depth Requirement (8 units).** Choose two courses listed above under the same Major Area (A to G). This requirement ensures that Ph.D. students, early on in their careers, acquire some depth of knowledge in a particular research area.

3. **Breadth Requirement (12 units).** Choose three courses from at least two different Major Areas (A to G) outside the student’s depth area. No course that is listed in the student’s depth area can be used to fulfill the breadth requirement, even if it is cross-listed in another area. Students, with the consent of the major professor, may petition for a non-CSE course to be counted towards the breadth requirement.

4. **Electives (12 units).** The remaining courses can be selected from additional CS graduate lecture courses, up to 8 units of graduate seminars in CS 260-269, and up to 8 units of approved undergraduate technical electives. Students, with the consent of the major professor, may petition for a non-CSE course to be counted as an elective.

**Milestones**

The Department has established three milestones to mark progress towards the Ph.D. degree in Computer Science: advancement to candidacy, presentation of the dissertation proposal, and final oral examination. A Ph.D. student must also satisfy all applicable Graduate Division requirements for each milestone.
Milestone I: Advancement to Candidacy. A student advances to candidacy after he/she has completed all of the Ph.D. course requirements described above, and passed the combined written and oral qualifying examinations, as described below. These two exams are intended to verify three components of the student’s preparation for Ph.D. research: (1) breadth of comprehension sufficient to enable Computer Science research in areas beyond the topic(s) of the research exam and dissertation; (2) ability to perform critical study, analysis and writing in a focused area; and (3) demonstrated research experience or ability to do research.

Written Qualifying Examination The written qualifying examination consists of a written report summarizing the oral presentation to be given at the oral qualifying examination. This report must be written in proper technical English and in the style of a typical Computer Science conference or journal publication, and must be submitted to the Qualifying Committee for approval at least one week prior to the oral qualifying examination. The student is expected to demonstrate research aptitude by undertaking a research study on some topic (typically a problem from student’s chosen research specialty that may be a promising area in which to conduct the dissertation research), under the guidance of his or her faculty major professor. The research must be presented orally to a Qualifying Committee, which is appointed by the Graduate Division based on nominations from the department. The committee will consist of at least four Senate faculty members, with at least three members whose home department is CSE. The committee evaluates the merits of the work and the student’s aptitude for research. The work must represent significant progress towards original and publishable research. This report must be written in proper technical English and in the style of a typical Computer Science conference or journal publication. The student must complete this requirement in no more than two attempts. The normative time for taking the Oral Qualifying Exam is by the end of the fifth quarter.

Oral Qualifying Examination The student is expected to demonstrate research aptitude by undertaking a research study on some topic (typically a problem from student’s chosen research specialty that may be a promising area in which to conduct the dissertation research), under the guidance of his or her faculty major professor. The research must be presented orally to a Qualifying Committee, which is appointed by the Graduate Division based on nominations from the department. The committee will consist of at least four Senate faculty members, with at least three members whose home department is CSE. The committee evaluates the merits of the work and the student’s aptitude for research. The work must represent significant progress towards original and publishable research. This report must be written in proper technical English and in the style of a typical Computer Science conference or journal publication. The student must complete this requirement in no more than two attempts. The normative time for taking the Oral Qualifying Exam is by the end of the fifth quarter.
Dissertation Committee: After advancing to candidacy, the student must form a Doctoral Examination Committee chaired by his or her major professor. The committee will consist of at least four senate faculty members with at least three members belonging to the CSE department (their home department is CSE).

Milestone II: Dissertation Proposal Examination
After advancement to candidacy, the student prepares a dissertation proposal that describes the dissertation topic, summarizes the relevant background literature, and presents a comprehensive research plan for the doctoral dissertation. The Dissertation Proposal Examination evaluates appropriateness of the research topic and the feasibility of the research plan. It also establishes a realistic timeline for the completion of the Dissertation. The Dissertation Committee administers this exam. The normative time for the Dissertation Proposal Exam is by the end of the third year. The Dissertation Proposal exam must be taken at least six months prior to the Final Doctoral Examination.

Milestone III: Final Doctoral Examination
The student is required to write a dissertation in accordance with the Graduate Division requirements and may be required to defend it in a public oral final doctoral examination to the Dissertation Committee. After a satisfactory performance on the final doctoral examination, the Dissertation Committee recommends granting the PhD degree. The student’s research and the dissertation must both meet the highest standards of originality and scholarship. The normative time for the completion of a Ph.D. in Computer Science is five years.

Professional Development Requirement
All incoming M.S. and Ph.D. students must enroll in the Fall, Winter, and Spring offerings of CS 287, Colloquium in Computer Science.

JUSTIFICATION:
The revised text adds a new statement under M.S. program course requirements, to specify which courses shall be graded and count towards degree requirements; a secondary statement was added to eliminate double-counting (and mimic the verbiage used in the Ph.D. requirements).

APPROVALS:
Computer Science and Engineering Department: 6/6/13
# Coversheet for Request for Approval

**To Modify Graduate Program Degree Requirements**

<table>
<thead>
<tr>
<th>Program</th>
<th>Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department/Academic Unit/School</td>
<td>Economics</td>
</tr>
<tr>
<td>Date</td>
<td>July 26, 2013</td>
</tr>
<tr>
<td>Proposed Effective Date</td>
<td>Immediately (Fall 2013)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty Contact:</th>
<th>Marcelle Chauvet</th>
<th>Email: <a href="mailto:marcelle.chauvet@ucr.edu">marcelle.chauvet@ucr.edu</a></th>
<th>Phone: x1587</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared by:</td>
<td></td>
<td>Email:</td>
<td>Phone:</td>
</tr>
</tbody>
</table>

## Proposed Modification(s) (please check all that apply)

- Admission requirements
- Unit requirements
- Professional Development Plan
- Course requirements
- Examination requirements
- Time-to-degree
- Other (please describe): 

1. Proposal must include a cover letter from the Dean, Associate Dean, Chair, Director or Program Advisor as appropriate, taking care to briefly describe the proposed modifications and justification for the request.

2. Attached proposal must include the proposed modifications as formatted in the example below. The existing requirements must be on the left column, and the proposed revisions on the right. Proposed additions must be underlined and deletions must be stricken.

<table>
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<tr>
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<tbody>
<tr>
<td>Insert existing program requirements on this side of the table</td>
<td>Insert proposed requirements on this side of the table. Underline the additions and strike the deletions.</td>
</tr>
</tbody>
</table>

**Justification:** The Justification should include examples such as impact on time to degree, expected impact on employment prospects, expected impact on recruitment. Please address whether current students will be permitted to switch to take advantage of the revisions. If so what will the approval process be?

**Faculty Approval Date:** Indicate the date of the faculty vote

**Department Chair / Program Director:** Please type name(s) as appropriate

**Signature:** Please include signature(s) as appropriate

**Date:** Date signed

## Checklist of Required Attachments/Appendices (please check to verify inclusion):

- Dean/Associate Dean/Chair or Program Advisor Cover Letter
- Proposal in proper table format – signed and dated as appropriate
- Revised and Dated Program Summary
- Revised Catalogue Copy
- Revised Website Copy
EXECUTIVE COMMITTEE
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES
REPORT TO THE RIVERSIDE DIVISION

Proposed Changes to the Graduate Program in Economics

CURRENT

Core Requirements

1. Economic Theory
   Students must complete the following:
   a) ECON 200A, ECON 200B, ECON 200C (Microeconomic Theory)
   b) ECON 201A, ECON 201B, ECON 201C (Macroeconomic Theory)
   c) ECON 212 (History of Economic Theory and Methodology) or ECON 213 (Methods and Themes in Economic History)

All students must pass two cumulative examinations: one in microeconomic theory (covering topics encompassed in the course sequence ECON 200A, ECON 200B, and ECON 200C) and one in macroeconomic theory (covering the topics covered in ECON 201A, ECON 201B, ECON 201C). Both examinations are given at the end of the first year, at the beginning of the fall quarter. After completing the sequence of courses, students must sit for each examination at each offering until they have passed the requirement. An unexcused failure to sit for a required examination will be regarded as a failure. No student will be given more than three attempts to achieve a satisfactory grade on each one of the two examinations. Copies of the rules regarding these cumulative examinations are available in the department office.

Quantitative Methods

Students must complete the following: ECON 205A, ECON 205B, ECON 205C (Econometric Methods I, II, III)

To satisfy these course requirements, students must attain a “B” average in the sequences ECON 200A,

PROPOSED:

Core Requirements

1. Economic Theory
   Students must complete the following:
   a) ECON 200A, ECON 200B, ECON 200C (Microeconomic Theory)
   b) ECON 201A, ECON 201B, ECON 201C (Macroeconomic Theory)
   c) ECON 212 (History of Economic Theory and Methodology) or ECON 213 (Methods and Themes in Economic History)

All students must pass two cumulative examinations: one in microeconomic theory (covering topics encompassed in the course sequence ECON 200A, ECON 200B, and ECON 200C) and one in macroeconomic theory (covering the topics covered in ECON 201A, ECON 201B, ECON 201C). Both examinations are given at the end of the first year, and at the beginning of the fall quarter. After completing the sequence of courses, students must sit for each examination at each offering until they have passed the requirement. An unexcused failure to sit for a required examination will be regarded as a failure. All students can have two attempts. Only students who pass at least one of the exams in the first or second attempts can have a third attempt in the other failed exam. No student will be given more than three attempts to achieve a satisfactory grade on each one of the two examinations. Copies of the rules regarding these cumulative examinations are available in the department office.

Quantitative Methods

Students must complete the following: ECON 205A, ECON 205B, ECON 205C (Econometric Methods I, II, III)

To satisfy these course requirements, students must attain a “B” average in the sequences ECON 200A,
ECON 200B, and ECON 200C; ECON 201A, ECON 201B, and ECON 201C; and ECON 205A, ECON 205B, and ECON 205C. They also must receive a grade of “B-” or better in ECON 212 or ECON 213. Core courses may be waived, based on equivalent graduate work completed elsewhere. The comprehensive examinations, however, may not be waived.

Colloquium Requirement
Students must enroll in at least one offering of ECON 289 (Colloquium in Economics) each quarter of their formal residence. In addition, students must give a presentation on their thesis research within one year of advancing to candidacy or by the fall term of their fourth year, whichever comes first.

Field Requirement
All students must:
i. complete course work in a major field consisting of three courses.
or
ii. take four additional field courses. Students must pass a comprehensive examination in their major field.

Comprehensive examinations in each major field are given twice a year.

Master’s Degree
Plan II (Comprehensive Examination)
Students must complete a total of 36 units, 24 of which must be at the graduate level. Students must complete the following:
1. ECON 200A (Microeconomic Theory) or ECON 206 (Mathematics for Economists)
2. ECON 204A (Microeconomic Theory for Master’s Students) or ECON 200A-ECON 200B (Microeconomic Theory)
3. ECON 204B (Macroeconomic Theory for Master’s Students) or ECON 201A-ECON 201B (Macroeconomic Theory)
4. ECON 205A (Econometric Methods I) and ECON 200B, and ECON 200C; ECON 201A, ECON 201B, and ECON 201C; and ECON 205A, ECON 205B, and ECON 205C. They also must receive a grade of “B-” or better in ECON 212 or ECON 213. Core courses may be waived, based on equivalent graduate work completed elsewhere. The comprehensive examinations, however, may not be waived.

Colloquium Requirement
Students must enroll in at least one offering of ECON 289 (Colloquium in Economics) each quarter of their formal residence. In addition, students must give a presentation on their thesis research within one year of advancing to candidacy or by the fall term of their fourth year, whichever comes first.

Field Requirement
All students must:
i. complete course work in a major field consisting of three courses.
or
ii. take five additional field courses. Students must pass a comprehensive examination in their major field.

Comprehensive examinations in each major field are given twice a year.

Master’s Degree
Plan II (Comprehensive Examination)
Students must complete a total of 36 units, 24 of which must be at the graduate level. Students must complete the following:
1. ECON 200A (Microeconomic Theory) or ECON 206 (Mathematics for Economists)
2. ECON 204A (Microeconomic Theory for Master’s Students) or ECON 200A-ECON 200B (Microeconomic Theory)
3. ECON 204B (Macroeconomic Theory for Master’s Students) or ECON 201A-ECON 201B (Macroeconomic Theory)
ECON 205B (Econometric Methods II)
5. ECON 212 (History of Economic Theory and Methodology) or ECON 213 (Methods and Themes in Economic History)

Examination Requirements
Students must pass one of the following examinations:
1. Master’s examination covering the topics in ECON 204A, ECON 204B
2. Doctoral cumulative examination in either microeconomic theory or macroeconomic theory (graded at the master’s level)
3. Doctoral Comprehensive Examination in any of the ten fields described above (graded at the master’s level)

JUSTIFICATION:

- Number of attempts for comprehensive exams: The Department unanimously agrees that graduate students should be given the chance to take a third attempt only if they have demonstrated competence in at least one core Economics subject and passed at least one comprehensive exam in the first or second attempt. As far back as we have data, all graduate students who did not pass two comprehensive exams in the second attempt failed in the third attempt and left the Ph.D. program. The faculty members think that it is counterproductive for the Department and for these graduate students who are failing the Ph.D. program to stay one extra year to take the third attempt when the probability they will succeed is almost zero. Graduate students have reported that staying this extra year was a huge emotional and financial burden for them and, after the fact, they rather had left after two attempts.

- History requirement: The Department unanimously agreed that students should be given the choice to take History as a field course, instead of being obliged to take it. The graduate students are not required to take any other field course. They are all optional. For consistency, the Department agreed to make History field courses optional.

- Others: there were some typos in the Catalogue that are now corrected

APPROVALS:

Department of Economics Meeting: 05/31/2013
Coversheet for Request for Approval
To Modify Graduate Program Degree Requirements

<table>
<thead>
<tr>
<th>Program</th>
<th>MFA in Visual Art</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department/Academic Unit/School</td>
<td>Art</td>
</tr>
<tr>
<td>Date</td>
<td>9/26/13</td>
</tr>
<tr>
<td>Proposed Effective Date</td>
<td>2014W</td>
</tr>
</tbody>
</table>

Faculty Contact: Amir Zaki  
Email: amir.zaki@ucr.edu  
Phone: 2-2257

Prepared by: Kristy Salazar Nugent  
Email: kristy.salazar@ucr.edu  
Phone: 2-2676

Proposed Modification(s) (please check all that apply)

- [x] Admission requirements  
- [x] Course requirements  
- [x] Unit requirements  
- [x] Examination requirements  
- [x] Professional Development Plan  
- [ ] Time-to-degree  
- [ ] Other (please describe):

1. Proposal must include a cover letter from the Dean, Associate Dean, Chair, Director or Program Advisor as appropriate, taking care to briefly describe the proposed modifications and justification for the request.

2. Attached proposal must include the proposed modifications as formatted in the example below. The existing requirements must be on the left column, and the proposed revisions on the right. Proposed additions must be underlined and deletions must be stricken.

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<td>Insert proposed requirements on this side of the table. Underline the additions</td>
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Justification: The Justification should include examples such as impact on time to degree, expected impact on employment prospects, expected impact on recruitment. Please address whether current students will be permitted to switch to take advantage of the revisions. If so what will the approval process be?

Faculty Approval Date: Indicate the date of the faculty vote

Department Chair / Program Director: Please type name(s) as appropriate  
Signature: Please include signature(s) as appropriate

Date: Date signed

Checklist of Required Attachments/Appendices (please check to verify inclusion):

- [x] Dean/Associate Dean/Chair or Program Advisor Cover Letter  
- [x] Proposal in proper table format – signed and dated as appropriate  
- [x] Revised and Dated Program Summary  
- [x] Revised Catalogue Copy  
- [ ] Revised Website Copy
RIVERSIDE GRADUATE DIVISION

PROPOSED Change in the Masters of Visual Art Catalog

<table>
<thead>
<tr>
<th>Present</th>
<th>Proposed</th>
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<tbody>
<tr>
<td>REQUIREMENTS FOR MASTER'S DEGREE</td>
<td>REQUIREMENTS FOR MASTER'S DEGREE</td>
</tr>
<tr>
<td>The MFA is a Plan I (thesis) master's degree program, requiring 72 units in graduate or approved upper-division undergraduate courses that must be completed with at least a letter grade of &quot;B&quot; or &quot;Satisfactory.&quot;</td>
<td>The MFA is a Plan I (thesis) master's degree program, requiring 84 units in graduate or approved upper-division undergraduate courses that must be completed with at least a letter grade of &quot;B&quot; or &quot;Satisfactory.&quot;</td>
</tr>
<tr>
<td>Required courses include 48 units in graduate courses in theory and criticism, as well as individual projects and tutorials:</td>
<td>Required courses include 60 units in graduate courses in theory and criticism, as well as individual projects and tutorials:</td>
</tr>
<tr>
<td>Five courses of Art 290, Individual Tutorial</td>
<td>Eight courses of Art 293, Directed Individual Studio Production (32 units)</td>
</tr>
<tr>
<td>Of the remaining 24 units in elective courses, at least one additional course must be in Art History or Media and Culture Studies, and at least two additional courses must be taken from a department other than art. These courses may be graduate or undergraduate courses.</td>
<td>Of the remaining 24 units in elective courses, at least one additional course must be in Art History or Media and Culture Studies, and at least two additional courses must be taken from a department other than art. These courses may be graduate or undergraduate courses.</td>
</tr>
<tr>
<td>MFA students will receive a degree in Visual Art. The course of study is not characterized by medium.</td>
<td>MFA students will receive a degree in Visual Art. The course of study is not characterized by medium.</td>
</tr>
<tr>
<td>Students participate on yearly reviews during the Winter quarters of their first and second year.</td>
<td>Students participate on yearly reviews during the Winter quarters of their first and second year.</td>
</tr>
<tr>
<td>The thesis requirement is met by the student's MFA thesis exhibition, accompanied by a written thesis on the work exhibited. A graduate thesis committee reviews the thesis. The committee is composed of four faculty members, at least three from the Department of Art. The fourth faculty member may be from another department at any UC campus.</td>
<td>The thesis requirement is met by the student's MFA thesis exhibition, accompanied by a written thesis on the work exhibited. A graduate thesis committee reviews the thesis. The committee is composed of four faculty members, at least three from the Department of Art. The fourth faculty member may be</td>
</tr>
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</table>
Justification

The MFA program in the Art Department was initiated less than ten years ago. These first years have been an opportunity for us to assess and reform how the program works and how it serves the students and university. The changes implemented above amend the requirements of the independent study course, now to be titled Art 293, Directed Individual Studio Production. This will more correctly match the instructional needs of advanced art production that develops dynamically from the individual expression of each student. The direct student and faculty instruction that this class provides has become a central aspect of our program and one that attracts applicants to the MFA program at UCR. Formerly we were using the 290 designation for this class, but this produced unnecessary work for both our department and graduate division in the form of required petitions for each student's enrollment. Additionally, we have taken this opportunity to write the class in a much more appropriate form for our utilization as well as increase the number of required credits students must take of the class. This new requirement will encourage the students to take this class with a wider range of the available faculty, emphasizing the non-media specific designation that for which our program is known. This increased requirement also is matched to the average number of credits that MFA candidates have been taking of the former 290 usage, thereby ensuring that the time to progress towards the thesis is not increased.

This course has been submitted to the Graduate Council and is already set for review at the beginning of the fall quarter 2013. We request that this class be promptly accepted for adoption in Winter of 2014 due to the excessive paperwork that the use of 290 caused for Graduate Division, our staff and students; and due to the far greater suitability of this class and its requirements for our program.

Effective Date: Winter 2014

Approved by the Art faculty on 09/05/2013

Department Chair: Amir Zaki
Signature of Chair:  

Date:  9/26/13
**Proposed Changes to Religious Studies Graduate Program**

<table>
<thead>
<tr>
<th>PRESENT:</th>
<th>PROPOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Notes:</strong> original submission was RLST 203, now changed to RLST 403</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Doctoral Degree</strong></th>
<th>[no change]</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Department of Religious Studies offers the Ph.D. in Religious Studies.</td>
<td></td>
</tr>
<tr>
<td>The Ph.D. program prepares students to enter into academia as researchers and university instructors in a specific field of expertise.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Admission</strong></th>
<th>[no change]</th>
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<tbody>
<tr>
<td>Although an undergraduate major in religious studies is not required for admission into the graduate program, applicants should demonstrate significant interest in and background in the academic study of religions and the appropriate scholarly approaches to religious studies. In addition, applicants are held to a high standard of undergraduate preparation for their graduate work: both basic and advanced courses in religious studies (in methods and in their chosen field of study), beginning work in foreign languages (particularly if this will be an integral component of their particular course of study), and a demonstrated ability to work across methods, traditions, and disciplines. A master’s degree is not required for admission to the doctoral program.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th><strong>Course work</strong></th>
<th>[no change]</th>
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<tbody>
<tr>
<td>Candidates must complete any two of the following core courses (RLST 200A, RLST 200B, RLST 200C), preferably in their first year of coursework. In addition, students must also complete two Method and Theory courses (RLST 201 and RLST 202), and at least 24 units in a major area of geographic study (either Asian religions or Religions in the West). At least 12 additional units should be taken in a minor area of geographic study (some other aspect of Asian Religions or Religions in the West).</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th><strong>Written and Oral Qualifying Examinations</strong></th>
<th>[no change]</th>
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<tbody>
<tr>
<td>Students must complete a round of qualifying written examinations, followed by an oral</td>
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</tbody>
</table>
defense of those examinations, in the quarter following their completion of course work. (Students may defer their examinations for one quarter in consultation with the graduate advisor and faculty.) Students complete the three written examinations over a two- to three-week period in the following areas:

| Major field studies | [no change] |
| Comparative studies | [no change] |
| Critical studies | [no change] |

The Major Field Studies examination evaluates the student’s mastery of the chosen field of study (some specific tradition within Asian religions or within Religions in the West), with particular attention to subdivisions of these fields of study on which the student has decided to focus (e.g., Buddhist monasticism or Christian ethics).

The Comparative Studies examination draws on the minor field of study the student has focused on in course work; the student must demonstrate the ability to elucidate aspects of the academic study of religions through the juxtaposition of traditions (e.g., Judaism and Islam).

The Critical Studies examination will have two components: a method section, focusing on some methodological approach to the study of religion (e.g., ethnography or literary studies) and a theory section, focusing on some conceptual approach to religion (e.g., Weber or Durkheim).

The three examinations give students the opportunity to demonstrate an overall mastery of subjects and approaches and prepare them for the more focused, rigorous research work they will pursue in their dissertations.

After completing the written examinations, students undergo an oral examination by committee. The content of the oral examinations is based on the written examination questions and answers.
Both the written and oral examinations are composed, administered, and evaluated by a qualifying committee, nominated by the graduate advisor in consultation with the student and is appointed by the graduate dean. [no change]

Upon the successful completion of the written and oral qualifying examinations, the student is recommended to the graduate dean for advancement to candidacy. [no change]

**Foreign Language Requirement** Students must demonstrate reading proficiency in either French or German, the languages in which much modern secondary scholarship in the discipline has been written. Students may petition to substitute either another modern language of secondary scholarship or a language of primary research if it is deemed more immediately relevant to their studies. This requirement can be fulfilled through a departmental examination, by passing a designated language course (FREN 009A, FREN 009B, GER 002R), or by alternative certification (such as a diploma from a foreign language institute). [no change]

In addition, students must demonstrate proficiency in any language or languages deemed critical for examination of primary texts in their declared field of study (e.g., Japanese, Latin, Arabic, Tagalog, Indonesian). It is strongly suggested that doctoral students begin studying relevant languages for research before beginning their course work at UCR. Adequate language training is becoming increasingly vital in the scholarly and professional training of academics in the fields of religious studies. Many research languages are offered at UCR; if necessary, the faculty will work with students to help place them in needed language courses at other institutions. [no change]

**Professional Development Training**

1. Two sessions of RLST 403 each quarter will be dedicated to professional development content. The subjects will include but are not limited to: preparation of a publishable article conference paper, panel, grant or fellowship application, or job application.

2. A weekly one hour networking meeting with a
<table>
<thead>
<tr>
<th>Dissertation and Final Oral Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students prepare a dissertation presented as prescribed by the Graduate Division under the direction of the candidate’s dissertation committee. After completion of the dissertation, the candidate is examined by the dissertation committee. This examination normally takes the form of a public presentation by the candidate followed by questions from the committee.</td>
</tr>
</tbody>
</table>

**JUSTIFICATION:**
Will allow the department to fulfill the Professional Development Requirement required by Graduate Division

Approved by the faculty Committee of Religious Studies: 11/02/2012

Department Chair / Program Director: Vivian-Lee Nyitray

Signature: [Signature]

Date: April 12, 2013
February 27, 2013

Dear Professor Nugent,

The Department of Mathematics would like to change the degree requirements for Masters and Doctoral degrees to include Professional Development Training. Please find attached the proposed degree requirements to replace the current degree requirements.

The only change is the addition of the requirement that all our graduate students complete at least 4 units of MATH 302 (Apprentice Teaching). This addition is to satisfy the Graduate Council's new requirement to provide professional development training to graduate students for credit. The course meets once a week and the topics include teaching methods, research tools, and job search. We do not expect any impact of this new requirement on our students as all our students who are Teaching Assistants are enrolled in the course.

The faculty voted to approve the change on January 11, 2013.

Yours sincerely,

[Signature]

Wee Liang Gan
Graduate Advisor
Department of Mathematics
Coversheet for Request for Approval
To Modify Graduate Program Degree Requirements

<table>
<thead>
<tr>
<th>Program</th>
<th>Ph.D., MA, MS Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department/Academic Unit/School</td>
<td>Mathematics/CNAS</td>
</tr>
<tr>
<td>Date</td>
<td>3/01/2013</td>
</tr>
<tr>
<td>Proposed Effective Date</td>
<td>13F</td>
</tr>
</tbody>
</table>

| Faculty Contact:         | Gerhard Gierz               |
| Email:                   | Gierz@math.ucr.edu          |
| Phone:                   | x23210                      |

| Faculty Contact:         | Kim Wolf                    |
| Email:                   | Kwolf@ucr.edu               |
| Phone:                   | x23805                      |

Proposed Modification(s) (please check all that apply)

- Admission requirements
- Unit requirements
- Professional Development Plan
- Other (please describe):
  - Course requirements
  - Examination requirements
  - Time-to-degree

1. Proposal must include a cover letter from the Dean, Associate Dean, Chair, Director or Program Advisor as appropriate, taking care to briefly describe the proposed modifications and justification for the request.

2. Attached proposal must include the proposed modifications as formatted in the example below. The existing requirements must be on the left column, and the proposed revisions on the right. Proposed additions must be underlined and deletions must be stricken.

<table>
<thead>
<tr>
<th>Existing</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert existing program requirements on this side of the table</td>
<td>Insert proposed requirements on this side of the table. Underline the additions and strike the deletions:</td>
</tr>
</tbody>
</table>

Justification: The Justification should include examples such as impact on time to degree, expected impact on employment prospects, expected impact on recruitment. Please address whether current students will be permitted to switch to take advantage of the revisions. If so what will the approval process be?

Faculty Approval Date: Indicate the date of the faculty vote

Department Chair / Program Director: Please type name(s) as appropriate
Signature: Please include signature(s) as appropriate
Date: 3/28/13 Date signed

Checklist of Required Attachments/Appendices (please check to verify inclusion):

- [x] Dean/Associate Dean/Chair or Program Advisor Cover Letter
- [x] Proposal in proper table format – signed and dated as appropriate
- [ ] Revised and Dated Program Summary
- [ ] Revised Catalogue Copy
- [ ] Revised Website Copy
Graduate Programs
The Department of Mathematics offers the M.A., M.S., and Ph.D. degrees in Mathematics.

Admission Domestic applicants must supply GRE General Test scores (verbal, quantitative, and analytical).

M.A. or M.S. in Mathematics
General university requirements are listed in the Graduate Studies section of this catalog. Specific requirements are as follows:

1. Completion of two of the following sequences: MATH 201A, MATH 201B, MATH 201C; MATH 205A, MATH 205B, MATH 205C; MATH 209A, MATH 209B, MATH 209C; or MATH 210A, MATH 210B, with a grade of “C” or better in each course and a GPA of 3.00 in each chosen sequence.
2. As a substitute for one or more course sequences in (1), passing a Ph.D. qualifying examination fulfills the course requirement of the corresponding sequence.
3. Taking 36 units of courses numbered between MATH 110 and MATH 189, or between MATH 200 and MATH 210. At least 18 must be from courses numbered between MATH 200 and MATH 210. The requirements of 1 and 2 above constitute the comprehensive final examination requirement for the degree.

M.S. in Mathematics (Applied)
General university requirements are listed in the Graduate Studies section of this catalog. Specific requirements are as follows:

1. Completion of two sequences of courses numbered between MATH 206 and MATH 209 with a grade of “C” or better in each course and a GPA of at least 3.00 in each chosen sequence. A sequence consists of all courses with the same course number except for an alphabetical suffix. Any course without an alphabetical suffix is not part of a sequence.
2. As a substitute for one or more course sequences in (1), passing a Ph.D. qualifying examination fulfills the course requirement of the corresponding sequence.
3. Taking 36 units of courses numbered between MATH 110 and MATH 189, or between MATH 200 and MATH 210. At least 18 units must be from courses numbered between MATH 200 and MATH 210.

Proposed:

Graduate Program
The Department of Mathematics offers the M.A., M.S., and Ph.D. degrees in Mathematics.

Admission Domestic applicants must supply GRE General Test scores (verbal, quantitative, and analytical).

M.A. or M.S. in Mathematics
General university requirements are listed in the Graduate Studies section of this catalog. Specific requirements are as follows:

1. Completion of two of the following sequences: MATH 201A, MATH 201B, MATH 201C; MATH 205A, MATH 205B, MATH 205C; MATH 209A, MATH 209B, MATH 209C; or MATH 210A, MATH 210B, with a grade of “C” or better in each course and a GPA of 3.00 in each chosen sequence.
2. As a substitute for one or more course sequences in (1), passing a Ph.D. qualifying examination fulfills the course requirement of the corresponding sequence.
3. Taking 36 units of courses numbered between MATH 110 and MATH 189, or between MATH 200 and MATH 210. At least 18 must be from courses numbered between MATH 200 and MATH 210. The requirements of 1 and 2 above constitute the comprehensive final examination requirement for the degree.
4. Professional Development Training: Complete at least 4 units of MATH302.

M.S. in Mathematics (Applied)
General university requirements are listed in the Graduate Studies section of this catalog. Specific requirements are as follows:

1. Completion of two sequences of courses numbered between MATH 206 and MATH 209 with a grade of “C” or better in each course and a GPA of at least 3.00 in each chosen sequence. A sequence consists of all courses with the same course number except for an alphabetical suffix. Any course without an alphabetical suffix is not part of a sequence.
2. As a substitute for one or more course sequences in (1), passing a Ph.D. qualifying examination fulfills the course requirement of the corresponding sequence.
3. Taking 36 units of courses numbered between MATH 110 and MATH 189, or between MATH 200 and MATH 210. At least
The requirements of 1 and 2 above constitute the comprehensive final examination requirement for the degree.

**Doctoral Degree**
The Department of Mathematics offers the Ph.D. degree in Mathematics. Specific requirements are as follows:

1. Passing four sequences numbered between MATH 200 and MATH 210. A sequence consists of all courses with the same course number except for an alphabetical suffix. Any course without an alphabetical suffix is not part of a sequence.
2. For each of the four chosen sequences in (1), a qualifying examination must be taken. Three of them must be passed with a grade of “A” and one with a grade of “B” or better. A student is allowed to take the qualifying examination at most twice for each sequence.

**Mathematics328 / Programs and Courses**
3. Completing four quarter-courses in mathematics numbered between 211 and 259

**Normative Time to Degree** 15 quarters

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18 units must be from courses numbered between MATH 200 and MATH 210. The requirements of 1 and 2 above constitute the comprehensive final examination requirement for the degree.

4. **Professional Development Training**: Complete at least 4 units of MATH302.

**Doctoral Degree**
The Department of Mathematics offers the Ph.D. degree in Mathematics. Specific requirements are as follows:

1. Passing four sequences numbered between MATH 200 and MATH 210. A sequence consists of all courses with the same course number except for an alphabetical suffix. Any course without an alphabetical suffix is not part of a sequence.
2. For each of the four chosen sequences in (1), a qualifying examination must be taken. Three of them must be passed with a grade of “A” and one with a grade of “B” or better. A student is allowed to take the qualifying examination at most twice for each sequence.

**Mathematics328 / Programs and Courses**
3. Completing four quarter-courses in mathematics numbered between 211 and 259

4. **Professional Development Training**: Complete at least 4 units of MATH302.

**Normative Time to Degree** 15 quarters
REVISION OF OCT. 8, 2013

Graduate Council: Attendance and Participation Policy

For discussion and vote: Graduate Council meeting of Oct. 17, 2013

The business of Graduate Council is of vital importance to the health and wellbeing of graduate instruction on the UCR campus. For that reason, regular Council meetings are scheduled in advance for the third Thursday of every month, from 9 to 11 a.m. (except in instances of holiday or break, when slight alteration in the schedule occurs, usually moving the meeting forward by one week). When Senate faculty are appointed to serve on Graduate Council, it is expected that they will be available to attend all of these meetings except under special circumstances, such out-of-town conference attendance or research. When a special circumstance arises, faculty members of Graduate Council should notify the Graduate Council Senate analyst as far in advance as possible; the analyst will also notify the Chair of Graduate Council.

When a faculty member of Council misses a meeting without notifying the Senate analyst in advance, the Chair shall make an inquiry, urging the member to keep in mind that attendance is importance to the smooth functioning of all Council business.

When a faculty member of Council misses two consecutive meetings with or without special circumstances, it shall be up to the discretion of the Chair to recommend that the member resign, and to ask the Committee on Committees to begin a search for an immediate replacement.

The same general principle about attendance and participation applies to Graduate Council subcommittee meetings, including Courses and Programs, Fellowships, and program review subcommittees. In addition to attending meetings, subcommittee members must read materials in advance, rank applications (on occasion), and participate in the writing of draft documents related to graduate program reviews. If any Council member is lax in these additional duties, it will be up to the Chair to determine if the member is still willing and able to serve on Graduate Council.
June 18, 2013

Raymond Russell, Chair, Sociology
Ellen Reese, Graduate Advisor, Sociology
Katherine Kinney, Vice Chair, Sociology and Assoc. Dean, CHASS
Shaun Bowler, Vice Chair, Sociology and Assoc. Dean, CHASS

RE: SOCIOLOGY INTERNAL REVIEW, 2012

This is to inform you that the Graduate Council has voted unanimously to lift the moratorium on graduate admissions to the Sociology Graduate Program. The committee was favorably impressed with the work that has been done this past year to improve the Graduate Program, and pleased that the program has been making strong progress meeting most of the Graduate Council's recommendations from the external and internal review. We fully support the recruitment of an incoming class for the 2014/2015 academic year.

The Graduate Council expects that the program will continue to work this fall to get official approval of the proposed new courses and program changes so that they can be implemented by the fall of 2014.

To follow on the program's progress, the Graduate Council requests that in one year's time (end of Spring 2014) the Graduate Advisor submit a formal report summarizing the changes to the program. We strongly recommend that the Graduate Advisor monitor the perceived successes and challenges for the graduate program among the students and faculty. To this end, we would like the Graduate Advisor to internally assess student and faculty opinions on critical issues related to graduate student success and program structure, and to provide Graduate Council with a summary report on the survey.

The Sociology Graduate Program will be reviewed by an external review team in the beginning of 2016. Please keep the overall goals for the graduate program in mind as you move forward: creating well-trained students, structuring the program so that students finish the program within normative time, and providing proper mentoring and preparation so that students place well in the job market.

Yours truly,

Connie Nugent, Chair
Graduate Council
Cc: Interim Chancellor Close Conoley
EVC and Provost Rabenstein
Dean Stephen Cullenberg, CHASS
Dean Joe Childers, Graduate Division
Chair Jose Wudka, Academic Senate
Response to the Graduate Council Findings and Recommendation Report on the Review of the Plant Biology Graduate Program

October 2, 2013 (EAC approved)

On June 18, 2013, the Plant Biology (PLBL) Graduate Program received the Graduate Council Findings and Recommendation Report on the review of the PLBL graduate program. Due to timing of receipt of the Report and the extensive faculty travel during the summer months, it was not possible to complete the Response until the initiation of the Fall 2013 quarter. A memo indicating the inability to implement the diversity plan (Section B) by the recommended date (September 1, 2013) was submitted on June 28, 2013 (see appended document: memo about timelines.pptx). The Response was drafted by the Graduate Educational Advisory Committee and approved by the PLBL faculty on October 7, 2013. A response to the eight recommendations is provided and a timeline is included.

A. The Botany and Plant Sciences Department should begin discussions with the Graduate Dean regarding the development and implementation of a professional MS degree as well as a 5-year BS/MS degree. Funds generated from these programs could be directed back into the Plant Biology graduate program and used for student support.

The Plant Biology Graduate Program will enter discussions regarding the development a professional MS degree as well as a 5-year BS/MS degree during the Fall 2013 quarter. The Graduate EAC will meet with the Dean of the Graduate Division to initiate these discussions in Fall 2013 (date to be set).

Throughout this process, the program will need to be mindful of the College Redesign process. It would not be a good use of faculty time to engage in the time-consuming aspects of new program development until the new college structure is understood.

B. Plans should be developed and mechanisms put into effect to enhance the diversity of the graduate student population. Graduate Council requests that a preliminary plan be submitted by Sept. 1, 2013.

The Plant Biology Graduate Program has a record of recruiting graduate student with diverse backgrounds but acknowledges that aggressive new strategies could increase the diversity in our program. At the present time, future efforts to increase student diversity in our Program are under discussion. The past and current Graduate Advisors for Recruitment, with anticipated assistance of the Graduate Secretary and Graduate Division, are compiling data on our present level of diversity and historical trends over the last ten years. We anticipate that specific strategies will follow from this fact-finding exercise. We anticipate that new recruitment strategies will help ensure that the diversity of the PLBL Graduate Program approaches the USA population at large. We will evaluate our progress and adapt our strategies annually. Some of the actions that have been envisioned are summarized below.

LOCAL EFFORTS: UCR has a highly diverse undergraduate body, among the most diverse in the nation. The PLBL Graduate Program can work closely with the undergraduate plant biology club to raise the awareness of the strength of our graduate program and careers in the plant sciences. This may include activities partnering with
appropriate undergraduate science organizations, such as Latinos in Science. For example, we envision creating mini-workshops on “How to Apply for Graduate School” with an eye to reaching third-year science undergraduates. Likewise, the PLBL Program plans to annually assemble the faculty who teach the introductory “learning community” courses to new freshmen to direct them to spend at least one session featuring plant biology as a career. In addition, a PLBL faculty member has developed BIOL 20 (a new introductory biology class with two or three sections) that focuses on plants and plant genomes in their experiments. This is serving as an excellent mechanism to introduce UCR undergraduates to the forefront of plant biology. The class also includes 2 to 4 speakers per quarter who introduce the students to other (non-medical) careers in biology (e.g. industry, government and teaching). Finally, the creation of a 5-year BS/MS degree in Plant Biology, if approved, should also attract more UCR students to the graduate program. Given UCR’s diversity, our targeted efforts at UCR undergraduates should increase the fraction of diverse students in our program.

REGIONAL EFFORTS: UCR is situated regionally in the sea of diversity that is Southern California. Within a 50-mile radius are numerous public and private institutions with high diversity including Cal State Universities, Loyola Marymount University and others. Annually, the PLBL Program will facilitate PLBL faculty visits to five regional campuses. Faculty will present a research seminar and a standardized talk on “How to apply to a PhD program” for advanced undergraduates and first-year MS students. It has been the experience of some individual Plant Biology faculty that these initiatives yield interest in our Program and applications from underrepresented groups.

NATIONAL EFFORTS: When the SACNAS meeting is held regionally (Fall 2014), the PLBL program will identify faculty who will participate by judging posters and/or staffing the American Society of Plant Biologists booth. In Fall 2013, one PLBL faculty member was a poster judge and gave a research presentation at the SACNAS meeting in San Antonio, Texas. It has been the experience of some individual PLBL faculty that these types of interactions yield interest in our Program and applications from underrepresented groups.

Finally, the PLBL program is redesigning its web-site with a focus on the pages that impact prospective graduate students (see Section H). This website redesign will include highlighting our current award-winning graduate students, several of whom are underrepresented minorities.

C. The Department should work closely with CNAS development officers to create a network of alumni and supporters with the intent of creating endowments suitable for graduate student support, graduate student activities (travel and research), herbarium support, and potentially, infrastructure and facility support and repair.

Working with the College’s development officers is beyond the scope of the Graduate Program’s Educational Advisory Committee. For this reason, the needs of the program have been referred to the Botany and Plant Science’s Advancement Committee, which works with college to prioritize departmental needs. At the present time the College development officers are focused on rebuilding critical research infrastructure, which will indirectly enhance the graduate research experience. The next priority will be enhancement of graduate education.

Unlike some of our sister campuses, UCR does not have robust endowments that can effectively support graduate education. The Botany and Plant Sciences department
currently has a small number of endowments. Most of these endowments do not have sufficient payout to provide continuing support for graduate students; examples include the Ira J. Condit Endowment for Research in Subtropical Horticulture, the Victor B. Youngner Memorial Fund, and the Cozza Endowment for Agricultural Research. Several of the endowments that currently impact PLBL graduate students are listed below.

<table>
<thead>
<tr>
<th>Endowment/Gift Funds</th>
<th>Impact on PLBL Graduate Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany and Plant Science Graduate Student Endowment Fund</td>
<td>Provides annual prizes to acknowledge outstanding student research accomplishments and support for student travel to professional meetings</td>
</tr>
<tr>
<td>Thomson Botany and Plant Science Graduate Student Research Award</td>
<td>Provides an annual prize to acknowledge outstanding student research</td>
</tr>
<tr>
<td>Gomez-Pompa Student Research Fund</td>
<td>Funding supports a prominent research scientist visit to UCR campus. PLBL students choose and host this speaker.</td>
</tr>
<tr>
<td>Herbarium/ Botanic Garden</td>
<td>Funding for the Herbarium and Botanic Gardens maintains and enhances these important resources for PLBL student research</td>
</tr>
<tr>
<td>Citrus Variety Collection</td>
<td>Funding for the Citrus Variety Collection maintains and enhances this world-renowned collection of citrus genotypes. This collection is used in PLBL student research.</td>
</tr>
<tr>
<td>Several gift funds are directed at specific crops or problems</td>
<td>This funding can be used to specifically enhance research with different crops.</td>
</tr>
</tbody>
</table>

The program also wants to stress the importance of investments in the research infrastructure for the faculty in the Department, articulated in by the Response to the External Review. These investments strongly impact student recruitment, research, and success. Investments in many of these projects are overdue (ie., renovation of Batchelor Hall, investments in plant growth facilities and greenhouses; and personnel for the UCR Herbarium), these large investments are unlikely to come from department endowments. The department is committed to emphasizing their importance and the fact that they should be a high priority for the College.

D. Both CNAS and the Office of Research and Economic Development have now hired staff with expertise in grant-writing and proposal development. Program faculty members are encouraged to meet as a group with these individuals to determine how assistance in the development of training grants may be met.

The Department of Botany and Plant Sciences has spoken with Vice Chancellor Michael Pazzani. Four members of the Research and Economic Development Office (including Randall Black) will visit with the faculty of the PLBL program during the Fall 2013 quarter. At this meeting, a discussion of opportunities and strategies and roles of the College and campus grant writers will be discussed. Topics will include future submissions of: multi-user equipment grants, a GAANN grant, graduate program training grants, grants to enhance undergraduate research engagement, and Center grants.
E. An annual retreat or symposium should be implemented in which faculty, graduate students and post-docs gather and share their current research interests and accomplishments.

The PLBL program agrees and annual retreats/symposia are a highly desirable addition to any graduate program. This type of event can provide a forum for communication of new ideas, displaying the programs research strengths and achievements, forging collaborations new collaborations and enhancing the joie-de-vivre of a program.

It the PLBL program’s experience that on campus symposia often have low faculty participation due to the close proximity of their labs. Off-site retreats are most effective in establishing and maintaining these critical bonds. However, off-site retreats (such as those run routinely in the 1980s-90s) cost over $300 (meals and lodging for two nights) per person. With over 60 graduate students, 40 faculty and a minimum of 40 postdoctoral fellows, the cost will exceed $42,000 annually. In this tight-budget climate, when the need for student GSR and research infrastructure has eroded, it is hard to justify such expenditures.

If a funding source should be identified, the PLBL program would enthusiastically engage faculty, students and postdoctoral fellows in a retreat. In response to the College Redesign Graduate Education Committee findings, the PLBL program recommended that the College provide funding on a rotating basis (once every three years) to departments and interdepartmental graduate programs to enable such retreats.

In the short term, less expensive options to enhance the esprit de corps are being pursued. PLBL will continue: (1) its annual fall social (Friday afternoon/evening in September) and (2) awards ceremony (May) annually that bring faculty, students, postdoctoral fellows and staff together. In addition, the department has also considered a short field trip that is relevant to the program. Perhaps a visit to a biotechnology company, orange growers and farms in San Diego county or the Bakersfield area, the Coachella Valley or field stations can be considered.

F. The Program should provide formal mechanisms of consultation between the graduate students and Program Leadership. Graduate student input should be sought for the development of the annual seminar series, updating the webpage, and organizing an annual retreat or symposium. Further mechanisms should be implemented to allow graduate student input to the operations of the Program such that their concerns are heard and addressed where possible.

This comment surprised the PLBL program. We understood from the Review Team that the vast majority of the PLBL students were happy and engaged in the program. The Review Team pointed out that some of our international students did not as feel engaged; for this reason an international representative to the Graduate Student Association was added (see #6 below). PLBL graduate students are currently very active in the graduate program as evidence by the following:

1. PLBL students have a vibrant Botany Graduate Student Association (BGSA).
2. The BGSA runs a weekly coffee hour that raises funding for graduate student travel to professional meetings.
3. Two members of the BGSA are part of the PLBL Graduate Educational Advisory committee (EAC). The EAC makes all academic recommendations for the graduate program. In the past two years, PLBL graduate student EAC representatives have been involved in several important academic decisions and documents. A few of the accomplishments in the past two academic years are noted below:

a. A major revision of the PLBL handbook (AY2011-12).
b. Revision of the student guidelines for the PhD Qualifying Exam (AY2011-12).
c. Revision of the faculty guidelines for the PhD Qualifying Exam (AY2012-13).
d. Creation of a new form for appointment of the PhD Dissertation Committee (AY2011-12).
f. Developed and deployed a PLBL Student Satisfaction Survey (AY2011-13).
g. Development of the PLBL Graduate Program Review documents and the response to the review (AY2012-13; current).

4. The PLBL students choose and host two speakers annually for the BPSC 250 seminar series.

5. PLBL student EAC representatives are currently involved with the redesign of the BPSC website that harbors information of the PLBL graduate program.

6. The BGSA has added an international liaison to BGSA to encourage students to bring forward international student concerns.

7. A Student Satisfaction Survey was deployed in summer 2013. Data will be analyzed and distributed to PLBL faculty and students at the beginning of the winter 2014 quarter.

G. CNAS and the Central Administration are strongly encouraged to address the infrastructural needs of this exceptionally strong program and department. The greenhouse and environmental growth facilities are in dire need of repair and replacement. Batchelor Hall also requires significant repair and upgrades if the campus to maintain this graduate program at the high level that it is today.

The PLBL program strongly supports this recommendation. The research infrastructure needs and impacts of recent reductions on GSR support have been conveyed to the College. Of particular concern to the program are new sources for GSR support (a future College development officer focus). The department’s Advancement Committee is relaying the critical research infrastructure needs of the department and PLBL program to the College. These needs includes renovation of Batchelor Hall, replacement/rejuvenation of growth chambers, the seed house (that currently has rodent problems), and cold storage for germplasm collections stored as seed (that needs refrigeration repairs). The College is acutely aware of these infrastructure issues. Interim Chancellor Jane Conoley (March 5, 2013) and Chancellor Kim Wilcox (September 26, 2013) visited the BPSC growth chamber facilities, greenhouses and Batchelor Hall.

H. The Departmental website requires immediate upgrading and repair.

The Department has allocated $750 for updating the Plant Biology Graduate Program and Departmental website. This is to be completed by mid October.
Time table for implementing the recommendations.

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Initiate Discussions</th>
<th>Phase Discussions</th>
<th>II Discussions</th>
<th>Campus Approval Process</th>
<th>Implementation Phase</th>
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</thead>
<tbody>
<tr>
<td>A1. Professional MS</td>
<td>Fall 2013</td>
<td>After CNAS</td>
<td></td>
<td>Spring 2014</td>
<td>Fall/Winter 2014</td>
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<td></td>
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<td>Redesign Plan is</td>
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<td></td>
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<td>announced</td>
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<tr>
<td>A2. BS/MS degree</td>
<td>Fall 2013</td>
<td>After CNAS</td>
<td></td>
<td>Spring 2014</td>
<td>Fall/Winter 2014</td>
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<td>Redesign Plan is</td>
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<td>announced</td>
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<td>B. Increase diversity (discuss and</td>
<td>Fall 2013</td>
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<td></td>
<td>Fall 2013</td>
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<td>deploy new strategies)</td>
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<tr>
<td>C. Work with CNAS Development Officers</td>
<td>Winter 2013</td>
<td>Fall 2014</td>
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<tr>
<td>D. Meeting with Research and Economic</td>
<td>Fall 2013</td>
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<td>Development Office</td>
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<td>E. Annual retreat</td>
<td>Fall 2013 discussion of</td>
<td></td>
<td></td>
<td>Submission of recommendations for funding of retreats (Spring 2013)</td>
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<tr>
<td></td>
<td>field-trip</td>
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<td>F. Graduate Student involvement</td>
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Graduate Council Findings and Recommendations
Graduate Program in Plant Biology

I. Introduction

The Department of Botany and Plant Sciences (BPS) offers the M.S. and Ph.D. degrees in Plant Biology. At the time of the review (AY 2012-2013), there were 73 students enrolled in the program (6 MS students, and 67 Ph.D. students). Students enrolled within the Ph.D. program have an option of developing a concentration in one of three areas Genetics, Ecology, or Cell, Molecular and Developmental Biology. Students within the MS program are enrolled in one of two tracks: Botany (emphasizing the fundamental aspects of plant biology) or Plant Sciences (emphasizing the applied aspects of the discipline). There are currently 40 active faculty members participating in the program including 5 cooperating faculty members from the Departments of Biology, Nematology, and Plant Pathology and Microbiology.

The Plant Biology Graduate program was reviewed March 3-4, 2013 by an external review team. Reviewers were Dr. Nigel Crawford, Professor of Biological Sciences, UC San Diego, Dr. Katrien Devos, Professor of Plant Biology, University of Georgia, and Dr. Harold Mooney, Professor of Biology, Stanford University. The external report was received March 25, 2013, and passed on to the program. Graduate Council received the program’s response on April 10, 2013. The subcommittee members involved in the review and drafting the F&R were Lynda Bell (History), Richard Redak (Entomology), and Ertem Tuncel (Electrical Engineering).

II. Key Points From External Review

A. The Plant Biology Graduate Program is a “strong and vibrant” program that spans a tremendous diversity of fields within the plant sciences (from the molecular to the ecosystem level). The quality and strength of the program is valued within the Department and across the UCR campus. The Program has significantly grown from its last review (2005) and continues to develop strength and diversity. The quality of the program derives in part from a very strong core of active and dedicated faculty that provides academic breadth and depth within the plant sciences. The atmosphere of the graduate program is congenial and supportive.

B. Reductions in GSR and TA funding are posing serious financial challenges to this graduate program. Reductions in CNAS and Graduate Division support are leading some faculty members to reevaluate their willingness to continue to support graduate students. This issue is not unique to the Plant Biology Graduate Program. The Review Team suggests several “potential remedies” to the loss of centrally funded support. These include

- increased administrative support for the development of graduate training grants,
- development of a professional master’s program
- development of a BS/MS program
- development of donor support for the program
C. The development of the core curriculum has been a success for first year students and benefits the integration across fields within the Program. Continued refinement and improvements to the core are expected.

D. The Review Team recommends that the Program institute an annual retreat that includes participating faculty, graduate students, and post-docs. The retreat could include a keynote speaker, student talks and/or posters, award presentations, etc. Such a retreat could be supported through outside donor funding. Organization of a retreat should heavily involve the Plant Biology Graduate Student Association.

E. The quality and services offered by the facilities available to the Program are mixed. Services and facilities offered by Institute of Integrative Genome Biology and Center for Plant Cell Biology is a “wonderful resource”. On the other hand, the quality of the research space in Batchelor Hall continues to deteriorate, and the greenhouse and environmental control facilities are in “great need of upgrading and repair”.

F. The diversity of the graduate student population needs improvement. The Review Team provides three suggestions for increasing graduate diversity.

   - Implement the concept of the BS/MS degree such that the diversity of the undergraduate population can begin to be reflected in the graduate population.
   - Leverage the Program’s connection to UC MEXUS to provide diverse mentoring.
   - Apply for extramural funding for undergraduate summer research programs aimed at underrepresented minorities.

G. Funding for the Herbarium and Botanic Gardens has been reduced. The Review Team suggests additional support for these units be provided through development, education and outreach activities.

H. Staff support for the Program appears to be exceptional and highly valued. The Review Team was concerned that the workload on the student affairs officer assigned to Plant Biology was at times excessive. Better coordination of the duties of student affairs officers within the BSGSAC center should be performed. Having multiple recruitment efforts across several programs during the same period should be avoided.

I. Assignments of TA’s should be flexible to avoid overburdening students with juggling research, qualifying exams, and teaching schedules. To better assess future student concerns and issues, the Review Team recommends regular consultation between faculty and the Plant Biology Graduate Student Association.

J. The Review Team recommends that providing a “more balanced speaker lineup” within the Departmental Seminar series would be more beneficial to the graduate students. The Team suggests graduate students and faculty from diverse areas coordinate the seminar series.

K. The Review Team encourages the Departmental Plan to place a hiring focus for future faculty on climate change and global warming. Such hires would be “well supported by the Department’s extensive breadth”.

L. The Department’s website on which the Program is highlighted requires substantial upgrading and repair.

III. Findings and Recommendations of the Graduate Council
A. The Botany and Plant Sciences Department should begin discussions with the Graduate Dean regarding the development and implementation of a professional MS degree as well as a 5-year BS/MS degree. Funds generated from these programs could be directed back into the Plant Biology graduate program and used for student support.

B. Plans should be developed and mechanisms put into effect to enhance the diversity of the graduate student population. Graduate Council requests that a preliminary plan be submitted by Sept. 1, 2013.

C. The Department should work closely with CNAS development officers to create a network of alumni and supporters with the intent of creating endowments suitable for graduate student support, graduate student activities (travel and research), herbarium support, and potentially, infrastructure and facility support and repair.

D. Both CNAS and the Office of Research and Economic Development have now hired staff with expertise in grant-writing and proposal development. Program faculty members are encouraged to meet as a group with these individuals to determine how assistance in the development of training grants may be met.

E. An annual retreat, or symposium, should be implemented in which faculty, graduate students and post-docs gather and share their current research interests and accomplishments.

F. The Program should provide formal mechanisms of consultation between the graduate students and Program Leadership. Graduate student input should be sought for the development of the annual seminar series, updating the webpage, and organizing an annual retreat or symposium. Further mechanisms should be implemented to allow graduate student input to the operations of the Program such that their concerns are heard and addressed where possible.

G. CNAS and the Central Administration are strongly encouraged to address the infrastructural needs of this exceptionally strong program and department. The greenhouse and environmental growth facilities are in dire need of repair and replacement. Batchelor Hall also requires significant repair and upgrades if the campus to maintain this graduate program at the high level that it is today.

H. The Departmental website requires immediate upgrading and repair.

The Program’s response to these Findings and Recommendations should include a timetable for implementing the recommendations.
EXTERNAL REVIEW

Plant Biology Graduate Program

University of California at Riverside

March 3-4, 2013

Review committee:

Dr. Nigel Crawford, Professor of Biological Sciences, UC San Diego

Dr. Katrien Devos, Professor of Plant Biology, University of Georgia

Dr. Harold Mooney, Professor of Biology, Stanford University
Executive summary
The Graduate Program in Plant Biology is an exceptional program that services approximately 70 PhD and MS students within the Department of Botany and Plant Sciences. The Department has an internationally recognized faculty with many world-class scholars that span a diverse set of disciplines from genomics and cell biology to ecology and crop breeding. Both the Department and the Program have a very strong core of dedicated faculty, staff and students that are committed to supporting a congenial and cooperative environment conducive to scholarship and research in diverse areas of plant biology. Their efforts have paid off and have produced a strong and vibrant program, which is valued by members both within and outside the Program and which continues to improve and strengthen over time. The biggest challenge facing the Program is the erosion of financial support for the graduate students. Though not unique to this Program, such erosion presents special challenges to such a graduate student-centric program. Several recommendations are provided including the introduction of new master’s programs and providing more support for the development of outside resources. Another issue arises from the exceptional diversity of the Program, which is one of its great strengths. It is difficult to maintain cohesive and productive interactions between the different labs and areas of research with such a wide range of interests and specialties. The Department is well aware of these challenges and has done an admirable job in addressing them: notably the effective use of the Departmental Seminar, social events, and a common core course (200A & B) for first year graduate students to foster interactions. The committee recommends the development of a yearly retreat to further these interactions. Additional recommendations regarding facilities, diversity and support are provided to help maintain and strengthen this exceptional Program.

Financial support for graduate students
The Department relies heavily on PhD students for research and TA assistants and devotes a tremendous amount of faculty resources to fostering a culture of support and congeniality for these students. This effort has paid off as the quality of graduate students has increased over time. Until this past year, faculty perceived that they could rely on financial support from the College and Graduate
Division to cover approximately the first two years of students’ expenses and fees. Additional support could also come from TAships and special dissertation awards in subsequent years if needed. This support has declined, which has been a bit of a shock to the faculty. While many appreciate and support the efforts to make graduate support more equitable across the College and the UCR Campus, the speed and extent of the cuts have left some faculty reevaluating their ability and willingness to continue supporting graduate students at current levels. The committee views this as a serious issue, especially in light of substantial student fee increases imposed by the University and of the uncertainty about future federal grant support. Several potential remedies are suggested (listed below) and should involve a coordinated effort between faculty and the administration.

Graduate training grants: Faculty have secured and continue to apply for training grant funds from various federal agencies. Such support alleviates the financial pressures on the Program and also nurtures the type of productive interactions that are so strong at this Campus. Faculty should have as much support as possible to secure such funds. They have expressed appreciation for the introduction of grant writing support and the availability of seed grants from the College but have also expressed a need for additional administrative and technical support for preparing and submitting applications. Such support should be provided either by directing faculty to existing support on campus or by creating additional support mechanisms. The faculty is commended for training and encouraging their students to apply for graduate fellowships, which has resulted in significant success.

Development of masters programs: Currently, the Program supports a small, traditional master’s program in which students are funded by the individual labs. This effort could be expanded significantly to provide tangible benefits both to the Program and the Campus. There are several options for the structure of such a master’s program that can be adopted (not mutually exclusive).

- A BS/MS program would recruit top UCR undergrds in their third or fourth year of undergraduate studies to work in individual faculty labs. Students would be involved in independent study and research culminating in a thesis. Such students typically pay their
tuition during both their undergraduate and graduate terms. The benefits from such a program are that the students would contribute to the research programs of the individual faculty and there would be an additional mechanism to entice underrepresented minorities into research.

The second option would be a professional master’s program, which could provide substantial revenue for the Program and University. Students would pay for such training, which has more targeted outcomes. Revenue from such programs can be captured by both the Department and Campus to fund and supplement new and ongoing activities that benefit faculty and students alike. Faculty can initiate courses or recruit senior members of their labs to provide such instruction.

Development of donor support: The College is commended for hiring an additional development officer to help in this arena. Other efforts could involve the development of alumni databases and outreach activities as well as community events highlighting the Department’s achievements. Such activities and funding could involve and would be especially helpful for the herbarium and museum, which are administered by the Department.

Integration of the Department
First year core course: In response to recommendations from a previous review, the Department has introduced a new core class (200A & B) for first year graduate students. We feel that this has been a great success. The students learn valuable skills and develop enduring relationships among their cohort. The faculty continues to refine and improve the course, and the students appreciate both the course and their faculty’s efforts.

Yearly retreat: To foster further integration, we recommend that the Department adopt a yearly retreat that includes faculty, postdocs and graduate students with a focus on the first year students. Such retreats work well just before the start of fall quarter as a mechanism to introduce the new students to the Program and for all members of the Department to interact. Poster sessions, talks from students and faculty, a keynote presentation, and award ceremonies are great components of such retreats. Outside funding from local companies, alumni or foundations are worth securing as it can
provide tangible upgrades to the retreat. Involvement of the Plant Biology Graduate Student Associate in helping to organize and run the retreat would provide assistance to the faculty and support the Program’s esprit de corps.

**Facilities**
Special acknowledgement is given to the IIGB/CEPCEB core facilities. The committee was very impressed by the services offered and the quality of the management and personnel. This is a wonderful resource for the Program and the Campus and should continue to receive strong support.

Two facilities, however, are in much need of repair and renovation. Batchelor Hall still functions, but the deterioration is getting serious. For example, the only freezer room is broken and not functioning. The air handling system needs improving. Until more permanent solutions are secured, temporary fixes should be performed (e.g. filters on air vents and improved janitorial services). The greenhouse and environmental control facilities are also in great need of upgrading and repair. We strongly recommend that the Campus make the renovation of Batchelor Hall and the Program’s plant growth facilities a high priority for the near future (as recommended in the previous review in 2005).

**Other recommendations**
**Diversity:** UCR is exceptional in that it has a large pool of underrepresented minorities among the undergraduates; however, this diversity does not carry through to the graduate level. The need for additional role models and mentors to service the undergraduate population of students is well recognized by the administration and faculty. We can provide three recommendations that would assist this effort. First, the aforementioned BS/MS program to involve students in lab research can be implemented. Second, the Program could leverage their connections to the UC Mexus program to attract faculty and scientists from Mexico to give presentations or provide mentoring for UCR students. Having the director of UC Mexus, Dr. Ezcurra, as part of the Department should help facilitate such efforts. Third, obtain funding, for example from NSF, to offer paid summer undergraduate research opportunities for minorities may attract such students to graduate research.
Herbarium and Museum: The supervision of these valuable facilities is provided by faculty in the Department. The facilities provide resources for research and important outreach efforts that benefit the Program. Budget cuts are restricting their activities and capabilities. Additional support should be provided, and greater involvement with development, education and outreach activities should be fostered with the Department.

Staff support: Staff support for the Program is exceptional and highly valued by the faculty and students. However, when asked by the committee, the staff indicated that their duties can be overwhelming at times and that they could use additional support to continue to offer their exceptional service. For example, student affair officers are primary administrators for three programs each and serve as backup administrators for the other programs. A reduction in this load would be helpful to the staff. Also, having to organize recruitment visits for 9 programs on the same day also puts an enormous strain on the staff. While holding joint recruitment visits certainly has advantages for both the graduate applicants and the faculty, determining the dates of the recruitment visits and the number of programs involved should be done in consultation with and consideration of staff to avoid overburdening of the staff in the planning and organization of those visits.

Qualifying exams and TAships for graduate students: The committee heard concern from some of the students about the workload expected of the students in their second year of study and about the format of the written exams. The faculty is encouraged to foster flexibility in the timing of TAships and exams as they deem appropriate (e.g. avoiding situations where the student is overwhelmed by a tight schedule of exams and TAships) and to survey the students about their concerns on a more formal basis. Also, targeted use of TAships to fill in deficiencies in students’ backgrounds before the qualifiers is encouraged. Despite the good relationship between faculty and graduate students, it appeared that students do not always bring their concerns to the attention of faculty. The Graduate Student Association, encouraged by the leadership of the PLBL Program, could play a more prominent role in communicating students’ concerns. We recommend regular
consultation with Plant Biology students of GSA and commend the Program for implementing a formal survey to assess student concerns and satisfaction.

**Departmental seminar:** Several students expressed a concern that this seminar series sometimes became too focused on a particular area (e.g. genomics/genetics vs ecology) depending on the faculty coordinator. A more balanced speaker lineup would be more amenable to the diverse pool of graduate students. Suggestions for improvement include having the seminar series co-coordinated by two faculty in different sections or to include a graduate student or two to balance the selection committee.

**Future faculty hires:** The committee supports the faculty’s interest and efforts in hiring faculty with interests and a research focus on the impacts and adaptation to climate change and global warming. Such efforts could be applied to crop breeding or the study of ecological, metabolic or genetic impacts imposed by these adaptations. The multidisciplinary skills required for such research would be well supported by the Department’s extensive breadth and talents.

**Departmental website:** The Department’s website is a key portal to students, faculty, and the community at large. It was not clear who was in charge of the website, and there were deficiencies in the site such as broken links to faculty publications. These deficiencies should be corrected, and someone should be appointed to oversee the site with authority to mobilize faculty to maintain and update their pages.
October 9, 2013

TO: Graduate Council

FM: Iryna Ethell, Director and David Lo, co-Director of PhD program in Biomedical Sciences

RE: Supplemental information to the program's response to the Council's Findings and Recommendations dated July 8, 2013.

Findings and Recommendations;

1. "Develop a strategic plan for the future of the Ph.D. graduate program, providing a vision for how the graduate program will integrate with the new Medical School. Included in this future plan should be discussion on how to integrate the clinical faculty in the Ph.D. training, targeted areas for future hires, and discussion of whether a new M.D./Ph.D. program is planned."

The School of Medicine is also actively developing partnerships with other UCR academic units and plans to develop research expertise in population-based health outcomes to further the goal of ultimately linking its basic and translational research to improve the health of the Inland Southern California region. The interconnectedness of the School of Medicine with the rest of the UCR campus will also enhance communication and collaboration across disciplines and further enrich the proposed training program by bringing medical perspectives to the molecular biology and epigenetics research enterprise.

The interconnectedness of the School of Medicine with the rest of the UCR campus is especially evident in the research enterprise. For example, in addition to the numerous collaborations between Biomedical Sciences faculty and research groups in Cell Biology and Neuroscience, Psychology, Bioengineering, there are also collaborations between clinical faculty and Engineering. A large number of our Biomedical Sciences graduate students are doing their thesis work in labs outside of the Biomed department. Finally, new collaborations are developing between clinical faculty and social science faculty in CHASS, with a near term goal to develop a research center in Population and Community Health studies.

A significant novel aspect of the Biomedical Sciences program and its association with the School of Medicine is the ability to train talented students in a combined degree program awarding both an MD and PhD, and this program will be launched very soon. The goal of the MD-PhD program is to develop Medical Scientists who will continue careers as primary researchers and scholars in health related topics. This contrasts with those gaining basic MD degrees or those with MD-Masters degrees (e.g., MPH, MBA, or Masters in Public Policy or Global Health) where the expectation is continued work in active clinical practice, public policy, or administration. Thus, selection of candidates is distinct from the approach toward the conventional medical school applicant population, where an ability to perform well in medical school coursework, commitment to primary
care, and communication and clinical skills are given primary consideration. Instead, selection will be primarily on the basis of an aptitude and commitment to research, whether in a biomedical lab-based setting, translational/clinical research, or population studies, in addition to an ability to perform well in medical school studies. Among a typical medical school class of 50 students each year at UCR SOM, we expect to include one or two combined degree candidates.

The MD-PhD program has three distinct tracks: Biomedical Sciences (with the Biomedical Sciences graduate program), Biomedical Engineering (with the Bioengineering Interdepartmental Graduate Program), and Population Health (described below). Each track has a distinct course curriculum to combine medical school and graduate course requirements, along with time defined for PhD thesis research. Because of the unique aspects of each track, students will apply and be admitted to a specific track, and remain in that track to graduation.

While most Medical Scientists will continue on to Biomedical research careers, our school’s mission to serve community health issues motivated the development of a distinct MD-PhD track in Population Health Studies. The curriculum for this track is based in social sciences research, including studies in Medical Anthropology and Psychology, Clinical Outcomes studies, and related work on health topics. Here, PhD degrees will be awarded by specific graduate programs in Psychology and Anthropology, involving a subset of faculty with research interests in Population and Community Health topics.

Students in all three tracks of the combined degree program will begin their studies along with the conventional MD students for the first three years (two years of basic sciences coursework and a year of core clinical clerkships), although in each track they will also have additional coursework, lab rotations, and thesis preparation work. In addition, they will participate in the regular Friday BMSC254 (“Pizza Friday”) series throughout their studies when possible. Students will also participate in a monthly Combined Degree Student Research Colloquium, where research presentations and discussions will be guided by a variety of graduate faculty members.

In the final year of the program when a PhD defense is anticipated, a final series of clinical rotations will also be scheduled in part to develop experience to prepare for residency, as well as “audition” for the residency match in the coming year. These rotations will be designed to enable active clinical experiences as well as time to finish thesis work (lab work as well as writing time).

As noted above, the program is nearly ready to launch. We have been working with each of the graduate programs described, as well as with the School of Medicine and Grad Division. Since the combined degree program simply streamlines the course and research components of each degree, no significant changes are made to either degree requirements.
2. “As part of this, a training grant submission should to be a priority. “

On September 25th we have submitted a new Ruth L. Kirschstein NRSA Institutional Research Training (T32) Grant proposal in response to PA-11-184. Under the guidance of Program Director, Prof. Iryna Ethell and Associate Program Director, Prof. Xuemei Chen the proposed project, “Research Training in Molecular and Epigenetic Medicine,” will launch an interdisciplinary pre-doctoral training program that features a project-based and disease-oriented curriculum with a unique focus on molecular and epigenetic medicine. This proposal details a partnership between two long-standing graduate programs at UCR – the Ph.D. Program in Biomedical Sciences and the Ph.D. Program in Genetics, Genomics and Bioinformatics – to integrate training in the molecular basis and pathophysiology of human disease, using state-of-the-art genetic, epigenetic and proteomic approaches. If funded this proposed new program plans to enroll two trainees in 2014-2015 (one from each program), four in 2015-2016 (2 from each program), and six (3 from each program) in each of the following three years, for a total of 24 unique trainees during the life of the proposed grant.

The project summary, the mission statement and objectives are provided below.

Project Summary
This new Ruth L. Kirschstein NRSA Institutional Research Training Grant application requests funds to support research training in molecular and epigenetic medicine at the University of California, Riverside, one of the nation's most ethnically diverse research universities. The proposed interdisciplinary training program will build upon existing curriculum in the Biomedical Sciences and Genetic, Genomics and Bioinformatics Ph.D. programs to offer a new disease-oriented curriculum with a unique focus on epigenetic medicine. The goal is to train independent research scientists able to bridge the wide gulfs that currently exist between basic research and clinical medicine. The proposed program has 26 preceptors who are actively involved with the training of pre- and post-doctoral individuals and lead well-funded laboratories with total current year direct contract and grant support of $11.8 million from the NIH. Research areas of these faculty mentors include: molecular neuroscience with emphasis on molecular mechanisms of neurodevelopmental and neurodegenerative disorders, and neuroimmune interactions; medical and molecular genetics with focus on developing new genetic, epigenetic and bioinformatic approaches; and host-pathogen interactions and infectious disease, including immune control of viral or parasite infections and genomics studies of parasite biology aimed at new drug discovery. Pre-doctoral trainees will be selected from students enrolled in these two Ph.D. programs, which attract a diverse cohort of students with broad experiences, cultural backgrounds and “distance traveled” while maintaining attention to rigor of undergraduate and postgraduate preparation. Two years of support is requested for a modest number of trainees: two in the first year, four in the second year, and six in each of the following three years. In combination with institutional support, each trainee will be supported for five years. These 24 unique trainees will be exposed to a variety of genetic, epigenetic, bioinformatics and proteomic
approaches and learn to apply the new approaches to address clinically relevant questions through a project-based course, the Molecular Basis of Human Disease, which was developed for this training program. Trainees will be prepared for future careers in academia and industry through several existing and new seminars, workshops, symposia and other innovative venues. The request for funding of this research training program is supported by the relevance of the training to human health, the unique focus on epigenetic medicine, the excellent training environment, the superb experience of the preceptors in training pre- and post-doctoral individuals, the strong institutional commitment, and the diverse graduate student body at the University.

**Mission statement**
The mission of the proposed training program is to train independent research scientists who are able to bridge the gulfs that currently exist between basic scientific research and clinical medicine using the most current epigenetic, genetic and proteomic approaches.

**Objectives** are to: 1) prepare selected trainees proficient in applying genetic, epigenetic and bioinformatic approaches to the pathophysiology of human disease, drawing upon the strengths of the respective graduate programs; 2) stimulate a fusion of these two distinctive perspectives through additional faculty collaboration and co-supervision of trainees; 3) enhance student training in biomedical sciences through problem-based learning and a newly designed project-based course; and 4) attract trainees from diverse backgrounds and prepare them for future careers in academia or industry.
Dear Prof. Ethell,

Attached, please find the response to the Graduate Council’s Findings and Recommendations resulting from the review of the graduate program that was submitted by Interim Chair Monica Carson on July 8, 2013.

Graduate Council thanks the program for their response to the Findings. The program’s responses are reasonable and show satisfactory progress moving forward on most of the issues that were identified in the review. The Council is very close to closing out this review but needs a little further information from the program first. With regard to the recommendation for providing a vision for how the graduate program will integrate with the new Medical School, would it be possible to provide the Council with the vision statement the program prepared for the NIH grant application that was referenced in response to Recommendation 2 attached? Hopefully this can be a simple cut/paste from the T32 application. Please also provide some of the details of the current grant submission (date submitted, potential funding date if approved, etc.). I am confident that with this bit of information, the program’s response can be presented to the Council at their next meeting in October and the review can be closed out.

Your response can be in the form of a memo to the Graduate Council, stating that the memo stands as a supplement to the program’s response to the Council’s Findings and Recommendations dated July 8, 2013. The Council would appreciate receiving this memo no later than October 21st, 2013.

Please let me know if you have any questions.

Thanks,
Sarah Miller
Graduate Council Analyst

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**Sarah Miller**
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July 8, 2013

Dear Graduate Council,

We thank-you for your report and we concur with the general overview and suggestions. Please find below a point-by-point response of the program to the specific suggestions/comments provided in the council report.

At this time, I also take the time to update council on the incoming program leadership (always found posted online: http://medschool.ucr.edu/graduate/contact.html). The director appointments are awaiting Provost approval. All other positions have been approved and confirmed.

Director: Dr. Iryna M. Ethell, Co-director, Dr. David D. Lo
Graduate Advisor for admission and recruitment: Dr. Ilhem Messaoudi
Graduate Advisor for enrolled students: Dr. Emma Wilson
BMSC Graduate Student Peer Mentor: Mr. Danh Do
BMSC AAO: Mr. Alex Chan

Please feel free to contact me if additional information or clarification is required. However, assuming the Provost approves the recommended director appointments, Dr. Ethell will be the primary contact for the program as soon as her appointment is confirmed. Again, we thank graduate council and the external reviewers for their careful review and critique of our graduate program.

Sincerely,

[Signature]

Monica J Carson, PhD

Monica J Carson, PhD
Interim Senior Associate Dean For Research
Interim Chair for the Division of Biomedical Sciences
monica.carson@ucr.edu
Graduate Council Report and Program Response (report in blue, program response in black):

Biomedicine Findings and Recommendations

Introduction

The Biomedical Sciences Graduate program was reviewed March 11-12th, 2012 by an external review team comprised of Diane Barber (UCSF), Richard Olsen (UCLA), and Bruce Trapp (Cleveland Clinic). The external report was received April 4, 2012, and passed on to the program. Graduate Council received the program’s corrections June 5, 2012. The last review of the program was in 2002.

We note that the graduate program structure and curriculum was completely transformed (via UCR Graduate Council approval mechanisms) in 2007. Thus the current BMSC graduate program curriculum and organization was in force for just under 6 years at the time of external review.

The Biomedical Sciences Graduate program is a cross-college program that attracts faculty and students interested in interdisciplinary approaches to solving problems related to human disease. The translational focus of the program and exposure of the graduate students to medical school curriculum provides a clear niche for the program both on campus and nationally. At the time of the review, there were a total of 17 graduate students and 41 faculty associated with the Biomedical Sciences Graduate program. Approximately one-third (14) of the faculty are in the Division of Biomedical Sciences, and the 27 cooperating faculty are primarily from the College of Natural and Agricultural Sciences, with a few faculty from the College of Engineering and College of Humanities, Arts, and Social Sciences.

We corrected a minor error in the council report in that there is no separate classification of cooperating faculty in the BMSC graduate program. As an interdisciplinary program, all participating faculty participate fully and equally in the program regardless of the college/school of their primary appointment. All “in person” votes and discussion of program issues occur during “biomed Pizza Fridays” with the schedule posted on the program website and emailed to all program members. Online or email votes or discussions are addressed to all participating faculty.

The external review team viewed the program as having numerous strengths in its research focus and curriculum. The more translational bent to the research of the faculty in the program was seen as complimentary to the graduate programs with more of a focus on basic research. The opportunity for the graduate students to take the medical school curriculum helps to provide training that prepares the students well for more clinically oriented research. The students seem to value their interactions with the program faculty as well as with the medical students. The director and faculty graduate advisors were found to deliver excellent student advising, and leadership for the program.

We are highly appreciative and value the active participation of all associated with our graduate program. We are proud that the outstanding efforts and achievements of our faculty and our graduate students were recognized by the external reviewers.

As discussed by the external review team, the program does face a number of challenges, and will need to be able to grow in unison with the new School of Medicine. For example, while a goal of the program is to train graduate students on research in areas related to human disease, the number of faculty in the program with funded research projects that relate directly to human disease is limited. In addition, the lack of a strong post-doctoral training program impedes the intellectual and research environment for graduate students. The program needs clear leadership and a well-developed strategic plan that maps the future of the Ph.D. program. The external reviewers provide a thoughtful analysis of these challenges, and present ideas to the program for ways to move forward. This is an opportune time for the program to plan and implement future growth, while raising its profile.

We agree that the future development and growth of the program needs to be actively planned and implemented with the evolution of the UCR’s SOM as well as with many other new UCR opportunities such as the 2014 launch of UCR’s School of Public Policy, School of Global Health and the 2014 launch of OneHealth Program jointly run between UCR and UC Davis. The outgoing and incoming program directors and advisors have been and will continue to meet with the leadership of SOM and UCR’s emerging new schools. As they develop, potential new initiatives and curricular opportunities will be brought to the “Biomed Pizza Fridays” for program discussion with Program Faculty and Students.

Findings and Recommendations

1) Develop a strategic plan for the future of the Ph.D. graduate program, providing a vision for how the
graduate program will integrate with the new Medical School. Included in this future plan should be discussion on how to integrate the clinical faculty in the Ph.D. training, targeted areas for future hires, and discussion of whether a new M.D./Ph.D. program is planned.

The program could not agree more with this recommendation. The outgoing and incoming graduate advisors and directors have been and will continue to be in active discussions with the School of Medicine’s Senior Associate Dean for Education, Dr. Paul Lyons, as well as with the Interim Senior Associate Dean of Research. We will ask that the BMSC Graduate Program leadership report these efforts at least annually to the program in the Biomed Pizza Friday venue. BMSC Graduate Program leadership is also in preliminary discussions with Dr. Anil Deolalikar to seek if there are joint curricular opportunities for the BMSC graduate program and UCR’s emerging school’s of public policy and global health.

We do note that the BMSC program does have a MD/PhD program, but it lacks a dedicated fellowship program. Therefore, we believe that the external reviewer’s discussion of a planned MD/PHD program may be referring to our lack of a funded fellowship program for the MD/PhD such as a NIH funded MSTP program. As we grow our base of NIH funding among our BMSC graduate faculty and establish a fully independent and fully accredited UCR SOM, we hope to successfully develop and compete for such training grants.

Targeted hires are outside the purview of an UCR graduate program. However, the BMSC graduate faculty participate in many faculty search committees in multiple UCR colleges and schools. In these roles, the graduate faculty have been instrumental in identifying new faculty and new synergies for the program, with 5 new NIH funded faculty with clear translational research foci being added to the graduate program in this last year. In this manner, we hope that the BMSC graduate program will continue to develop and serve as an unifying and synergizing bridge between participating faculty in all UCR colleges and professional schools.

2) Consider ways to provide stipends for students from the program for a two-year period instead of one year. As part of this, a training grant submission should to be a priority. One suggested idea was to create teaching opportunities for the graduate students in the medical curriculum, by funding TA positions. This would have the additional benefit of creating more opportunities for students to participate in teaching.

The program completely agrees that two year funding for graduate students would be ideal. However, neither UCR’s graduate division nor SOM and the other participating colleges have funds to devote to this goal. Therefore, the program agreed that a training grant submission is a priority. In order to gather sufficient NIH funded investigators required for a T32 grant, Dr. Ethell and Dr. Chen are currently preparing a joint NIH T32 training grant submission between BMSC and GGB for the September 2013 NIH deadline. BMSC graduate program and SOM leadership are seeking similar collaborative opportunities with other UCR programs.

We are happy to report that a three year effort to generate a SOM-based TA-ship has finally come to fruition. Beginning August 2013, the SOM is offering two TA-ship positions for the entire academic year. In future years, the goal will be to break up these two positions into 6 quarter positions.

A second idea was to more formally encourage students to apply for fellowships in their first year. The program could not agree more with this suggestion. We have noted the high success rate of Dr. Rodgers in Bioengineering and the BCOE in mentoring students in generating, submitting and obtaining NSF fellowships. Program leadership has begun discussions with Dr. Rodgers and will be bringing new ideas to the Biomed Pizza Friday for discussion by Program participants on how to replicate similar mentoring programs for the BMSC graduate students.

More predictable funding for first year students would be beneficial for the program as well. We are unsure of the meaning of this comment. The program has never had a deficit in funding first year graduate students; UCR’s Graduate division has provided the program with the standard array of first year UCR graduate fellowships. The SOM has also made clear funding commitments to the BMSC graduate program so that the program can provide additional funding (stipend, tuition and fees) for the
special summer session required for our program. Please note that the first year BMSC graduate program begins on the same schedule as the medical school curriculum in August.

3) Address the conflict between the course and rotation schedules for first year students. The students need to be able to do meaningful rotation periods with each prospective lab group. The current schedule leaves inadequate time for proper student training and evaluation.

This has been a real and acknowledged issue since the new curriculum was conceived. Ideally, the program would like to have sufficient funds to support student stipends for summer rotations between the first and second year of the graduate program. This is as yet an unrealized goal. Applications for training grants are one method that the program is attempting in order to solve this issue.

However, the program did institute one new change this last year in an attempt to address this issue immediately after being raised by the external reviewers. The program now allows first year students to extend their research rotations for a full quarter so that they may have extra time to interact meaningfully with potential dissertation advisors. In the 2012/2013 academic year all four of the first year graduate students were able to successfully identify their major professor by the end of the winter quarter.

4) Present strategies for improving external grant funding for faculty. One suggested idea was a mentoring program for grant writing. Other ideas were to bring in faculty to give increased depth in certain areas to enhance synergies among faculty in the program.

The program could not agree more with these suggestions. Many of BMSC graduate faculty currently do participate in mentored grant writing programs within their primary departments or as part of other center associations. Although UCR graduate programs do not have hiring authority, the program continues to seek to attract UCR faculty with synergistic research foci to the program. In addition, the program agrees that it should also provide venues for multi-PI or program project grant applications amongst the participating BMSC graduate faculty. This issue will be raised and discussed with the program faculty in the next academic year.

5) Provide a plan for stronger recruiting and outreach efforts. The program needs to take multiple approaches to increasing its visibility.

We are happy that to date, we have successfully recruited 4-5 domestic students each year. However, our pool of applications has been relatively small presumably due to low visibility of the program. Recruiting and outreach is a general challenge for many UCR graduate programs including BMSC. We do not have easy answers nor did the external reviewers or graduate council provide specific suggestions on increasing program visibility.

Our program remains devoted to the service and diversity mission of the SOM. As in past years, at least one of the graduate advisors will be attending SACNAS to advertise our program to this audience. We will also continue with our current outreach efforts to the regional California State Universities. We will continue to bring this high priority issue to our participating faculty and students for discussion and brainstorming.

We also feel that the level of financial support offered as stipend may be a negative factor in recruiting top students to our program. Therefore, we are seeking to get consensus on increasing the GSR step level of support for BMSC graduate students (currently amongst the lowest on campus).

6) Consider ways to bring more postdoctoral research fellows to the labs of faculty in the program. This could benefit the program in multiple ways, including increasing the intellectual level, training environment, and excellence of the program.

All but one of the SOM labs with BMSC graduate students have one or more post-doctoral fellows. Labs in CHASS, CNAS and BCOE have a more heterogeneous distribution of post-doctoral fellows in their labs that likely reflects discipline specific preferences. We do not seek to advise individual faculty on how they choose to staff their own labs. However, BMSC program leadership are currently engaged in applying for NIH T32 and CTSA grants which would bring substantial funds for the hiring of post-doctoral fellows in the labs of participating UCR faculty.
Biomedicine Findings and Recommendations

Introduction
The Biomedical Sciences Graduate program was reviewed March 11-12th, 2012 by an external review team comprised of Diane Barber (UCSF), Richard Olsen (UCLA), and Bruce Trapp (Cleveland Clinic). The external report was received April 4, 2012, and passed on to the program. Graduate Council received the program’s corrections June 5, 2012. The last review of the program was in 2002.

The Biomedical Sciences Graduate program is a cross-college program that attracts faculty and students interested in interdisciplinary approaches to solving problems related to human disease. The translational focus of the program and exposure of the graduate students to medical school curriculum provides a clear niche for the program both on campus and nationally. At the time of the review, there were a total of 17 graduate students and 41 faculty associated with the Biomedical Sciences Graduate program. Approximately one-third (14) of the faculty are in the Division of Biomedical Sciences, and the 27 cooperating faculty are primarily from the College of Natural and Agricultural Sciences, with a few faculty from the College of Engineering and College of Humanities, Arts, and Social Sciences.

The external review team viewed the program as having numerous strengths in its research focus and curriculum. The more translational bent to the research of the faculty in the program was seen as complimentary to the graduate programs with more of a focus on basic research. The opportunity for the graduate students to take the medical school curriculum helps to provide training that prepares the students well for more clinically oriented research. The students seem to value their interactions with the program faculty as well as with the medical students. The director and faculty graduate advisors were found to deliver excellent student advising, and leadership for the program.

As discussed by the external review team, the program does face a number of challenges, and will need to be able to grow in unison with the new School of Medicine. For example, while a goal of the program is to train graduate students on research in areas related to human disease, the number of faculty in the program with funded research projects that relate directly to human disease is limited. In addition, the lack of a strong post-doctoral training program impedes the intellectual and research environment for graduate students. The program needs clear leadership and a well-developed strategic plan that maps the future of the Ph.D. program. The external reviewers provide a thoughtful analysis of these challenges, and present ideas to the program for ways to move forward. This is an opportune time for the program to plan and implement future growth, while raising its profile.

Findings and Recommendations

1) Develop a strategic plan for the future of the Ph.D. graduate program, providing a vision for how the graduate program will integrate with the new Medical School. Included in this future plan should be discussion on how to integrate the clinical faculty in the Ph.D. training, targeted areas for future hires, and discussion of whether a new M.D./Ph.D. program is planned.
2) Consider ways to provide stipends for students from the program for a two-year period instead of one year. As part of this, a training grant submission should to be a priority. One suggested idea was to create teaching opportunities for the graduate students in the medical curriculum, by funding TA positions. This would have the additional benefit of creating more opportunities for students to participate in teaching. A second idea was to more formally encourage students to apply for fellowships in their first year. More predictable funding for first year students would be beneficial for the program as well.

3) Address the conflict between the course and rotation schedules for first year students. The students need to be able to do meaningful rotation periods with each prospective lab group. The current schedule leaves inadequate time for proper student training and evaluation.

4) Present strategies for improving external grant funding for faculty. One suggested idea was a mentoring program for grant writing. Other ideas were to bring in faculty to give increased depth in certain areas to enhance synergies among faculty in the program.

5) Provide a plan for stronger recruiting and outreach efforts. The program needs to take multiple approaches to increasing its visibility.

6) Consider ways to bring more postdoctoral research fellows to the labs of faculty in the program. This could benefit the program in multiple ways, including increasing the intellectual level, training environment, and excellence of the program.
The UCR Biomedical Sciences (BMS) Program is an umbrella graduate program for the School of Medicine with program faculty having primary appointments in the Division of Biomedical Sciences or in multiple other academic campus units. The current goal of the program is to train PhD candidates to conduct research addressing questions related to human diseases. To achieve this goal the Program emphasizes course work in years 1 and 2 designed for obtaining a comprehensive understanding of human physiology and human disease pathophysiology, and thesis research beginning in year 2 that bridges basic science investigation and clinical medicine.

Strengths
Program and Curriculum
The goal of the BMS Program to train students for investigative research in areas related to human diseases is important and has high significance, impact, and funding potential. The BMS Program provides this distinct niche at UCR and complements other UCR programs having a primary focus on basic science research, such as Cellular, Molecular and Developmental Biology (CMDB), Biochemistry and Molecular Biology (BMB), and Genomics and Genetics Biology (GGB). The distinct focus on human diseases is the predominant reason current BMS students chose to come to UCR. Additionally, BMS students conveyed a strong belief that the Program is preparing them for future competitive academic and industry investigative research.

Since the previous external review in 2002, the BMS Program initiated a revised curriculum that is extensive and challenging but stronger for preparing students in translational research. BMSC230, a didactic series of lecture courses taken with first year medical students at UCR and taught by many BMS core faculty, provides an excellent foundation in human physiology, and a unique opportunity for PhD and MD students to interact and share ideas and perspectives. Students in the BMS Program indicated that taking BMSC230 and having cross-pollinating interactions with medical students was a distinct strength. BMSC260 Topics in Biomedical Research, a series of problem-based learning modules developed for PhD students, offers strong investigative and independent thinking components of training by exploring current literature, questions, and experimental models of human pathophysiology. Disease topics chosen by faculty, including cancer, cystic fibrosis, metabolic diabetes, TB, atherosclerosis, and Alzheimer’s disease, have broad significance and also relevance to the research programs of BMS faculty. As noted below, however, a current challenge is to ensure excellence and continuity between sessions in response to students’ concerns that only ~ half of the sessions are strong and effective. Another notable strength of the revised curriculum is BMSC254, a weekly forum for students to present work in progress, that importantly is attended by a substantial number of faculty.

The BMS Program has improved resources, although as described below securing additional necessary resources is a current need. Improved resources include designated administrative support, funds for recruiting 4-5 new faculty and a new building that will house state-of-the-art laboratories for new recruits. Recently established funds for PIC (Program for Innovative Collaborative Research) intramural grants provide an important resource for establishing
collaborative research; however, whether these efforts translate to increased extramural funding remains unclear.

Faculty
BMS core and joint faculty share a strong collective vision about the direction of the program in filling a much-needed investigative focus at UCR in human diseases. Documents and interviews confirmed faculty are enthusiastic, energetic, and committed toward maintaining a high standard in training future investigators in translational research. Faculty with primary appointments in the BMS Division retain a good democratic voice in the direction and quality of the Program. There appears to be a refreshing lack of divisiveness between faculty in the Division, although some joint faculty in the Program expressed a preference for more input and transparency with changes and goals. Teaching quality is high. Also, a distinct strength is a commitment toward providing students with high quality and engaged graduate advising, and the efforts of Monica Carson and Iryna Ethell toward achieving this goal are commendable.

The breadth and scope of research in BMS-affiliated laboratories is generally sufficient for the objectives and size of the program, although a noted challenge described below is the students' preference for an increased number of PI's doing translational research. The BMS program research strengths include neuroscience, immunology, cardiology, and infectious diseases. A research focus group on "neuron-glia interactions" integrates several BMS faculty including Drs Carson, Lo, Ethell, Binder, Wilson and several faculty from CMBD and BMB. The goal is to generate program and training grants. This group meets regularly and has been successful in engaging young faculty such as Dr Emma Wilson who attributes this interaction as a major influence in obtaining NIH grant support.

The current recruitment effort to hire 4 new faculty in the Division will increase the strength of the BMS Program. New faculty hires with distinct translational research programs will provide students with more choices for research laboratories and research projects, and should benefit current faculty through collaborations and translational expertise. Recruiting several new faculty having research programs within current thematic strengths such as inflammation, neural/glia interactions, or microbial pathogenesis is important for increasing the depth of the BMS Program and for collaborations that could equate to extramural funding for the program and for independent investigators. It is critical for the Division to successfully recruit four new faculty with demonstrated success in obtaining research funding and with leadership consistent with increasing future research funding at UCR. In addition, it is critical for the Division to continue to pressure the campus and UC leadership for replacement, with start-up funds, of faculty FTEs scheduled for retirement in the next few years, possibly 4-5, two already announced (Strauss, Johnson). Equally important will be early recruitment of suitable academic clinical faculty.

An important aspect of this external review was to evaluate levels of external funding for each faculty member. Based upon the information provided, it was difficult to determine current funding levels of BMS faculty. It would have been helpful if current and past external support was provided in the NIH grant format. This should be easily accessible and could be added to the brief CV provided for each faculty member. The reviewers did obtain a somewhat satisfactory list of this funding after the visit.

Students
The number of students is appropriate based on currently available training opportunities and resources. The quality of students is improved since the last Program review in 2002. Although our review committee was unable to evaluate the caliber of the BMS student applicant pool, there are an increased number of domestic students accepted who have undergraduate
degrees from highly regarded institutions. Some but not all faculty with students in other UCR graduate programs believe BMS students are of comparable strength. The previously high attrition rate of nearly 50% appears to currently be lower, although this was difficult to establish because although documentation indicated a near 50% attrition, interviews with faculty and Program leadership indicated a lower rate. Time to completion of PhD degree is within the national average. Documentation on matriculated students was not clearly available to the reviewers to evaluate the placement and successes of program graduates.

Current students are largely enthusiastic about the Program. They believe they have strong and valuable interactions with faculty and a reasonably active voice in the Program. Students also expressed that their interactions with medical students in courses and study groups during their first year provides different and valuable insights.

Challenges
Program and Curriculum
A major challenge is maintaining a PhD program focused on human diseases at an institution without clinician scientists. The recent appointment of Devin Binder, Assistant Professor In Residence, who has a strong and well-funded research program investigating cellular mechanisms related to traumatic brain injuries, is an important first step in meeting this challenge. The anticipated accreditation of a UCR four year MD degree program with a projected entering class beginning Fall 2013 should also strengthen the BMS Program, although it remains unclear how the anticipated MD program will impact the PhD program. An articulated vision appears to be highly focused on an MD/PhD program but lacking a strategic plan for how the BMS PhD program will be improved. Additionally, it is uncertain whether an initial reliance on community physicians in local hospitals for clinical training in an MD program will enhance research at UCR. Although most faculty in the biological sciences are highly supportive of an accredited MD program and believe it is imperative for the growth of UCR, more attention is needed for the academic side of this venture. Another challenge with the anticipated accreditation of an MD program is ensuring transparent and effective communication between leadership and faculty in the biological sciences regarding plans, allocations of resources and impact on existing PhD programs.

Although the BMS Program has a goal to train students for investigative research in areas related to human diseases, a clear strategic plan and designated leadership are lacking. Faculty with primary appointments in the Division of Biomedical Sciences expressed a preference for retaining their current “democratic consensus” for decision-making but clearer leadership is needed to speak for the needs of the Program.

The relatively small numbers of students in the Program makes it imperative to currently focus on strengthening depth at the expense of breadth and to retain focus on a limited number of areas with in-house expertise, such as inflammation, neural/glia interactions, and microbial pathogenesis. A broader scope of research areas is a feasible way to develop and expand the program in the future but considering the current size of the BMS Program and resources, strength will be most enhanced with a more limited focus.

A challenge of the current curriculum is maintaining comprehensive training in human physiology and diseases while preserving adequate time for investigative research. The heavy didactic coursework limits effective research rotations during year 1. The current curriculum designating a limited 5-week period – and more importantly limited research time during each 5-week period – is not sufficient for students to manage a reasonable rotation project or for faculty
to evaluate student performance. This is a particular concern of faculty who do not directly teach in first year courses and hence do not have routine interactions with students to evaluate their strengths and limitations. Referring to rotations as a techniques course diminishes the importance in training a student to think conceptually about scientific problems. Another challenge of the current curriculum is to ensure excellence and continuity between sessions in BMSC260, which students believe should be improved.

Increasing funding and research facilities for the BMS Program are critical to maintain strength and improve excellence in training students. Achieving funding to support students for their first two years in the Program is important and efforts should be increased to secure a training grant, more student fellowships and/or funded TA positions. A stated goal of the BMS Program is “to develop the teaching potential of each student” but this is not currently being met. Student responses to a questionnaire indicate a majority believes stipends and opportunities to TA are inadequate and available research facilities and equipment should be improved. We recommend that four TA positions be created for second year BMS PhD students. Funding might come from the Medical School budget. These positions should be contingent upon development of a tutorial program for year one medical and graduate students. This will meet the stated need for teaching experience for the BMS graduate students and provide a secured second year for the students. This should remove some of the financial burden of the BMS faculty and open up more laboratories for graduate students.

Faculty
A challenging responsibility of faculty is to enhance excellence of the research climate. Current research in the Program is strong; however ensuring that a substantial number of faculty have research projects addressing questions directly focused on human diseases is important for meeting the goals of the Program. The limited number of postdoctoral fellows in Program-affiliated laboratories is a concern. Few BMS students are doing their thesis work in laboratories that have postdoctoral fellows. Interacting with and learning from postdoctoral fellows is a highly beneficial aspect of graduate student training and increases the Intellectual climate. Also important for a strong research climate is an organized seminar series that brings in outside investigators to present their research and to meet with graduate students.

Maintaining extramural funding by Principal Investigators is critical for strengthening the BMS Program. While the review committee acknowledges the current funding crisis in biomedical sciences research, the proportion of BMS faculty without extramural funding is larger than other PhD programs within and outside of UCR. Additionally, BMS students expressed disappointment – and loss of confidence - in coming to UCR and rotating in laboratories only to subsequently learn that funding for stipend support or a research project was not available.

BMS would benefit from formal mentoring programs for students and junior faculty. Current student mentoring is active but appears to be largely informal and supplemented by a Women in Science forum, which is not utilized by all students. Although mentoring of new faculty is apparently happening, a formal mentoring program for junior and new faculty is not.

BMS should also establish a formal internal review program for NIH grants. While especially beneficial for new or junior faculty, this will benefit all faculty regardless of career stage. The review committee should include three senior faculty with at least one with NIH study section experience and another with little experience in the research focus. This will require that grants be finished 30 days prior to submission, so they can be reviewed and modified. A reward mechanism could be established to encourage participation. In today’s atmosphere of low NIH funding, it is beneficial to receive major criticisms prior to official submission.
Students
Efforts should be directed toward increasing the quality and size of the applicant pool and enhancing diversity.

Recommendations
1. Efforts to increase visibility of the Program and its distinct excellence should be a high priority. Outreach initiatives, including recruiting visits to undergraduate institutions, booths at scientific meetings, and contacts with Directors of undergraduate programs in biomedical sciences in State and private Universities in California. With the State of California and local UC and government interest in development, and providing resources for, recruitment of faculty, medical students, and PhD students of Mexican-American heritage, this avenue should be vigorously pursued.

2. Leadership of the BMS Program should be clearly designated and embrace a vision for maintaining program goals and excellence. Additionally, it is important to provide leadership with adequate decision-making responsibilities and administrative support. The four to five new faculty slots provides an opportunity to recruit a top level researcher with the attraction of using 2-3 of these slots for development of their program. This was tried in 2010 and was not successful, partially due to the failure of accreditation of the 4 year medical school. If the accreditation succeeds this year, this plan should be revisited with the goal of attracting an individual with leadership qualities that include current major funding and program development. The inclusion of two or three recruitments could be a sufficient incentive to attract a top candidate. Despite the apparent availability of extremely qualified candidates for junior faculty positions, it would be unwise to fill the slots with four Assistant Professors in four areas of research.

3. A commitment toward enhancing the BMS PhD program within plans for an anticipated accredited MD program at UCR should be a distinct and articulated goal. Plans and resource allocations should be effectively communicated to all faculty in the graduate program.

4. The number of required rotations in the first year should be reduced from four to three to allow more time spent on each rotation. Each rotation should be 8-10 weeks duration and several days of 5+ hours of block time per week should be ensured. This could be achieved by revising the schedule of lectures in BMSC 230 to consolidate times of lectures to mornings or afternoons several days a week.

5. Acquiring increased funding for the Program and for students should be a high priority to enhance excellence and student training. Student stipends for the first two years should be a goal. This should be initiated by funding four TA’s for second year students with the obligation of teaching/leading tutorials for medical and graduate students in year one courses. These TA’s can be eventually replaced/increased by obtaining a training grant focused on one of the existing fields of expertise in the Program (glial-neuronal interactions, microbial pathogenesis/infectious diseases) or a training grant application by the CGNI group with funded slots shared by students within the BMS and Neuroscience graduate programs. Increasing opportunities (preferably funded) for TAships is important to achieve the goal of training students for academic careers. The anticipated MD program offers an excellent opportunity and possibly financial resource for second year BMS students to TA in BMSC 230. Additionally, requiring students to submit fellowship applications during years 1 and 2 might be considered. In addition to possibly acquiring additional support, it would give students training in thinking about current questions in their field of interest and in grant writing.
6. With funding considerations and the limited number of students, the BMS Program should build on current thematic strengths (inflammation, neural/glia interactions and neuroscience, microbial pathogenesis) before expanding research scope. New faculty recruits should have research programs that enhance these thematic strengths and at least one – preferably two – of the four anticipated new hires should be mid-career or higher. New hires should also be made with the goal of providing student training in translational research or a mechanistic understanding of biological processes related to human diseases. The search and recruitment process for new faculty should include members of the BMS program with primary appointments in other departments and be coordinated with faculty in other graduate programs at UCR. Additionally, establishing an organized mentoring program for junior and new faculty is highly advised.

7. Continued effort toward increasing the intellectual climate will enhance the excellence of the Program and students’ training experiences. Most notable are maintaining a seminar series for outside speakers, fulfilling a need for more postdoctoral fellows, and successfully recruiting new faculty who will provide initially further strength to current thematic areas and eventually additional scope in translational research.