AGENDA
GRADUATE COUNCIL MEETING
Thursday, December 12, 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 November 21, 2013 meeting
   Attached

Information/Discussion
9:15 – 9:25
2. Announcements
   a. Vice Chair of the Graduate Council
   b. CCGA Representative
9:25 – 9:30
   c. Graduate Student Council Representative(s)
   d. Dean of the Graduate Division - ABSENT

Action
9:30 – 9:40
3. Courses and Programs Subcommittee
   A. Approval of Courses:
      1. CS 203 - Advanced Computer Architecture – CHANGE*
      2. CS 213 - Multiprocessor Architecture and Programming – CHANGE*
      3. CS 223 - Reconfigurable Computing – CHANGE*
   
   * Course is related to a new program or program change on the agenda.

9:40 – 9:50
4. Program Changes:
   1. Computer Science Catalog Updates – 2014-15
      Attached
   2. Plant Biology – course addition to requirements in catalog
      Attached

Discussion/Action
9:50 – 10:10
5. Proposed Revised Self-Supporting Graduate Professional Degree Programs Policy
   See iLearn – “ACTION ITEMS"

Discussion/Action
10:10 – 11:00
6. Graduate Program Reviews
   A. English response to F&R and vote to close-out
   B. Mechanical Engineering response to F&R and vote to close-out
   C. History F&R - vote to send to program
   See iLearn – “REVIEW MATERIALS”
   Emailed
Present:
Lynda Bell, History, Chair
Ertem Tuncel, Electrical Engineering, Vice Chair
Rick Redak, Entomology, Secretary
Malcolm Baker, Art History
Chris Chase-Dunn, Sociology
John Kim, Comparative Literature & Foreign Languages, CCGA Rep.
David Lo, School of Medicine
Rene Lysloff, Music
Rollanda O’Connor, GSOE
Tom Payne, Computer Science & Engineering
Daniel Schlenk, Environmental Sciences
Jing Shi, Physics
Jorge Silva-Risso, SoBA
Jingsong Zhang, Chemistry
Joe Childers, Graduate Dean (ex-officio)
Preston Williams, GSA Representative

Absent:
Wendy Ashmore, Anthropology

Guests:
Linda Scott, Graduate Division

Approval of Minutes
The minutes from the October 17, 2013 meeting were approved as written, with one abstention.

Chair’s Announcements
Chair Bell informed the committee that she followed up on Graduate Council’s recent discussion of virtual courses (“V” courses). Prof. Ward Beyermann, Chair of the Committee on Educational Policy (CEP), has been involved with online education for graduate students. Chair Bell asked for a volunteer to be the liaison with CEP to help write the policy for online education; Jingsong Zhang volunteered.

Chair Bell talked about President Napolitano’s visit to campus. President Napolitano is very concerned about graduate education. She is also very familiar with UCR which was impressive.

Chair Bell introduced the Graduate Council iLearn site. The Resources tab contains items that may be of interest to Council members, including items received from the Executive Council. Chair Bell’s introductory PowerPoint presentation is also stored there.
Chair Bell informed the committee that one of the graduate programs under review this year is not being cooperative with the Council’s deadline for submitting review materials. They do not understand why they need to have their materials submitted so early if their review is not taking place until April, 2014. Chair Bell asked for the committee’s suggestions for handling this situation. One member suggested that Graduate Council develop a policy to follow when these situations arise. Other members suggested the threat of a moratorium or to inform the program that whatever is submitted by the deadline is what will be forwarded to the extramural reviewers, and that updated materials received after the deadline will not be accepted. Chair Bell asked the committee to think more about the issue so it can be revisited at a future meeting.

Chair Bell informed the committee that a grade appeal was received from a student in Spanish. The grade appeal was forwarded to the Graduate Council by the Graduate Division. Chair Bell received a great deal of additional information about the student and tried to only focus on the grade appeal itself. Chair Bell convened the Graduate Council Administrative Committee to review the portion of the appeal that was in English. The Administrative Committee voted that there was no merit or indication that the instructor used non-academic criteria to evaluate the student. Chair Bell consulted with campus counsel, David Bergquist, who indicated that there was enough of the student’s own translation in the English portion of the appeal for the committee to evaluate and make a decision. Chair Bell will write a memo to the student and instructor, giving them both one week to respond, as mandated by Regulation 5 – Procedures for the Appeal of Grades. Sarah will have the appeal documents available for review to members who wish to review them.

Chair Bell is convinced that the Regulation 5 process needs to be revised. It mentions violations of the Faculty Code of Conduct that the Graduate Council is not equipped to investigate. Chair Bell would like to change the process in which these appeals are routed to the Graduate Council.

Chair Bell will not be at the December 12th Graduate Council meeting. Vice Chair Tuncel will chair the meeting.

Chair Bell reminded the Graduate Council that the Senate Division meeting is next Tuesday, November 26th.

Other Announcements

John Kim, CCGA Representative – Prof. Kim informed the committee that President Napolitano was discussed at the last CCGA meeting. She would like to increase graduate student support and is looking into non-resident tuition (NRT). She is promoting a 35% increase in graduate students which would affect four UC campuses, UCR being one of them.

There was a great deal of discussion about self-supporting programs. Former President Yudof decided that the Anderson School of Business at UCLA should be a self-supporting program.

There have been demands by the state and Governor Brown for more concrete graduate student metrics. The specific questions are: what percentage of graduate students graduate after four years? What is the real time to degree? What is the normative time to degree? Governor Brown made the statement that there are too many Humanities Ph.Ds. President Napolitano understands
that standard metrics across the system are unreasonable. She would like each campus to determine how they want to be evaluated to the satisfaction of WASC.

CCGA received the School of Public Policy’s Masters Proposal; a lead reviewer has been assigned.

Preston Williams, GSA Representative – No announcements.

Graduate Dean Joe Childers – The Graduate Division received nearly everything they requested in their budget from the Provost. The per student average will be increased for all graduate programs. The Provost also approved the Provost Research Fellowship program proposed by Dean Childers and committed up to $500k for the program (funding for 10 fellowships at $50,000 each). Dean Childers expects to spend about $750k on these fellowships, with his office supplementing the balance. The fellowships will cover two years of support and will not count against the programs per student average. Graduate Division will be asking programs to nominate students. The fellowships will be used as a recruitment tool and will be for incoming students, not current students. Eligible students must have a five year package; can have no more than $35,000 in stipends for year one, a GRE score of at least 323, and a GPA of at least 3.75. The program can supplement with their own central fellowship dollars from Graduate Division or any other funds – TAships, GSRs, etc. Programs are not allowed to pay more than 6 quarters of NRT. Graduate Division also received an increase in diversity dollars and will continue their Diversity programs.

Dean Childers will be implementing a discount/refund policy for faculty who have paid the equivalent of 6 quarters of tuition and fees from their external grants. These students will then be eligible for up to one year (3 quarters) of tuition from the Graduate Division, one quarter at a time. However, Accounting is making this very difficult. It will require that the Accounting staff do numerous manual journal entries because the payroll system (PPS) is not equipped to handle these types of transactions. Dean Childers will send the program guidelines to the Graduate Council members.

Graduate Division will be meeting with the graduate advisors soon. Programs will be asked to make their policies for assigning TA’s and written qualifying exams available publicly. These policies need to be transparent. Some students are threatening to hire attorneys.

Graduate Division is creating an iLearn site for graduate advisors to collect the data they need.

The M.D./Ph.D. program will have MOU’s between the Medical School and whichever programs are participating. It will not require any action by the Graduate Council. They are not asking for Graduate Council to review and approve curricular changes or courses. Students will be required to be admitted to both programs. Therefore, the Medical School will need Graduate Council to identify what the requirements will be for a student participating in both programs.

Changes in professional fees and self-supporting program policies are coming our way from Systemwide.
Dean Childers would like the Graduate Council to think about following through with the outcomes of the graduate program reviews. Programs need to change their view of these reviews and what they are intended to accomplish. The Administration is not very cognizant about these reviews. Graduate Council should find a way to make programs and the Administration pay attention to the outcome of the reviews.

**Courses and Programs to be approved**

Graduate Council voted to approve/return the following courses as indicated:

1. CEE 249/BIEN 249 - Integration of Computational and Experimental Biology – CHANGE - approved
2. CS 201 - Compiler Construction – CHANGE - approved
3. CS 202 - Advanced Operating Systems – CHANGE - approved
4. CS 204 - Advanced Computer Networks – CHANGE - approved
5. CS 205 - Artificial Intelligence – CHANGE - approved
7. CS 207 - Advanced Programming Languages – CHANGE - approved
8. CS 210 - Scientific Computing – CHANGE - approved
9. CS 211 - High Performance Computing – CHANGE - approved
10. CS 215 - Theory of Computation – CHANGE - approved
11. CS 218 - Design and Analysis of Algorithms – CHANGE - approved
13. CS 229 - Machine Learning – CHANGE - approved
15. CS 231 - Computer Animation – CHANGE - approved
16. CS 234 - Computational Methods for Biomolecular Data – CHANGE - approved
17. CS 235 - Data Mining Techniques – CHANGE - approved
18. CS 236 - Database Management Systems – CHANGE - approved
19. CS 237 - Advanced Topics in Modeling and Simulation – CHANGE - approved
20. CS 238 - Algorithmic Techniques in Computational Biology – CHANGE - approved
21. CS 239 - Performance Evaluation of Computer Networks – CHANGE - approved
22. CS 240 - Network Routing – CHANGE - approved
23. CS 241 - Advanced Topics in Network Measurements and Security – CHANGE - approved
24. CS 242 - Information Retrieval and Web Search – CHANGE - approved
25. CS 245 - Software Evolution – CHANGE - approved
26. CS 246 - Advanced Verification Techniques in Software Engineering – CHANGE - approved
27. CS 253 - Distributed Systems – CHANGE - approved
28. CS 255 - Computer Security – CHANGE - approved
29. CS 257 - Wireless Networks and Mobile Computing – CHANGE - approved
30. CS 260 - Seminar in Computer Science – CHANGE - approved
31. CS 261 - Seminar in Artificial Intelligence and the Design of Expert Systems – CHANGE - approved
32. CS 262 - Algorithms and Data Structures – CHANGE - approved
33. CS 263 - Seminar in Distributed Systems – CHANGE - approved
34. CS 267 - Seminar in Databases – CHANGE - approved
35. CS 269 - Software and Hardware Engineering of Embedded Systems – CHANGE - approved
36. CS 272 - Probabilistic Models for Artificial Intelligence – CHANGE - approved
37. GBST 302 - Teaching Practicum – NEW - approved
38. MSE 246/BIEN 224 - Cellular and Molecular Engineering – CHANGE - approved

Courses previously reviewed & returned for corrections:

1. MCS 302 - Teaching Practicum – NEW – Returned because it had no syllabus. - approved

Systemwide Review of Proposed Revisions to the Academic Personnel Manual - APM 600
Chair Bell informed the committee that comments were only received from Prof. David Lo. Graduate Council discussed the honorarium payment portion of the policy and agreed that faculty should not take an honorarium as a condition to accept an invitation to speak at or visit another campus. John Kim mentioned that CCGA wanted explicit language added about the welfare of graduate students as they move from one campus to another.

Graduate Program Reviews
Plant Biology close-out memo –
Graduate Council voted to close-out the Plant Biology review at their October 17th meeting. Chair Bell wrote a draft close-out memo and posted it on iLearn. Graduate Council voted to approve the memo and send it to the program and appropriate administrators.

Anthropology response to F&R –
Chair Bell indicated that Anthropology was a model review as well as a model response to the F&R. Graduate Council voted to close-out the review. Chair Bell will draft the close-out memo. The memo should note that the program raised the point of being confused about the indirect return to the program; the Dean needs to see this so it can be addressed. The Council may also suggest that the program talk to their Dean about the process. The archaeology side of the program is responsible for the program’s very high reputation. This area will be hit with many upcoming retirements which should also be raised as a point of concern to the Dean. Chair Bell will post the close-out memo on the iLearn site for the Council’s review and comment prior to distribution to the program and appropriate administrators.

Biomedical Sciences response to F&R –
Prof. Dan Schlenk presented the Biomedical Sciences review close-out materials to the Council. Graduate Council voted to close-out the review. Chair Bell will draft the close-out memo.

Bioengineering response to F&R and close-out memo – Chair Bell presented Prof. Wendy Ashmore’s comments about Bioengineering’s response to the F&R. Chair Bell wrote a draft close-out memo and the Council voted to close-out the review. Chair Bell will finalize the close-out memo and send it to Sarah to forward to the program and appropriate administrators.

CMDB response to F&R – Prof. Rick Redak presented the CMDB review close-out materials to the Council. Graduate Council voted to close-out the review. Chair Bell will draft a close-out memo with the remaining issues that need to be addressed.
Graduate Council Revised Attendance and Participation Policy
Graduate Council reviewed and approved the revised Attendance and Participation Policy.
Coversheet for Request for Approval  
To Modify Graduate Program Degree Requirements

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<thead>
<tr>
<th>Program</th>
<th>Computer Science &amp; Engineering</th>
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<tbody>
<tr>
<td>Department/Academic Unit/School</td>
<td>BCOE</td>
</tr>
<tr>
<td>Date</td>
<td>11/14/13</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>Vassilis Tsotras</th>
<th>Email: <a href="mailto:tsotras@cs.ucr.edu">tsotras@cs.ucr.edu</a></th>
<th>Phone: x2-2888</th>
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<tr>
<td>Prepared by:</td>
<td>Amy Ricks</td>
<td>Email: <a href="mailto:amy@cs.ucr.edu">amy@cs.ucr.edu</a></td>
<td>Phone: x2-2903</td>
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**Proposed Modification(s) (please check all that apply)**

- ☑ Admission requirements
- ☑ Course requirements — course changes/new courses MUST be submitted in CRAMS simultaneously with program change/new program submission
- ☐ Unit requirements
- ☐ Professional Development Plan
- ☐ Examination requirements
- ☐ Time-to-degree
- ☐ Other (please describe):

1. If the program change involves changes to any existing courses (deleting courses, changing existing courses, or adding new courses), the course changes MUST be submitted in CRAMS simultaneously with the program change submission so that Graduate Council can review all affected courses with the proposed program change.

2. 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.

3. 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 strikethrough.

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

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<tr>
<th>Department Chair / Program Director:</th>
<th>Please type name(s) as appropriate</th>
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<tr>
<td>Signature:</td>
<td>Please include signature(s) as appropriate</td>
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<td>Date:</td>
<td>Date signed</td>
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**Checklist of Required Attachments/Appendices (please check to verify inclusion):**

- ☐ Dean/Associate Dean/Chair or Program Advisor Cover Letter.
- ☐ Completed Coversheet for Request for Approval To Modify Graduate Program Degree Requirements.
- ☐ Revised Catalogue/Website Copy in proper table format including Justification as indicated above. Must be signed and dated.
November 14, 2013
REVISED

TO: Dr. Lynda Bell
Chair, Graduate Council

FR: Dr. Laxmi Bhuyan
Computer Science & Engineering

RE: Requested Catalog Updates for 2014-15

Dear Dr. Bell:
The attached requested catalog change was voted on and approved by the Computer Science faculty.

CS 161L is being removed from the list of required courses in the CS Major; therefore, we are removing it from the required prerequisites for admission to the graduate program.

CS 203A is being renumbered; we removed 'A' suffix per suggestions from the Registrar, due to deletion of paired course CS 203B.

Thank you.
BOURNS COLLEGE OF ENGINEERING
REPORT TO THE GRADUATE DIVISION
November 14, 2013

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

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.

PROPOSED:

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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.

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**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.

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 student.
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.
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 1: 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.

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.

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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.

**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.

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:
CS 161L is being removed from the list of required courses in the CS Major; therefore, it is being
removed from the required prerequisites for admission to the graduate program. CS 203A is being
renumbered and has already been submitted in CRAMS for approval; CS 203B was already approved for
deletion.

APPROVALS:
Computer Science and Engineering Department: 11/6/13 (admission changes) & 7/8/13 (CS 203
changes)
Coversheet for Request for Approval  
To Modify Graduate Program Degree Requirements

<table>
<thead>
<tr>
<th>Program</th>
<th>Plant Biology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department/Academic Unit/School</td>
<td>Botany and Plant Sciences</td>
</tr>
<tr>
<td>Date</td>
<td>11/20/13</td>
</tr>
<tr>
<td>Proposed Effective Date</td>
<td>14 Winter</td>
</tr>
</tbody>
</table>

Faculty Contact: Mikeal Roose  
Prepared by: Jammy Yang

<table>
<thead>
<tr>
<th>Proposed Modification(s) (please check all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Admission requirements</td>
</tr>
<tr>
<td>☐ Unit requirements</td>
</tr>
<tr>
<td>☐ Professional Development Plan</td>
</tr>
<tr>
<td>☐ Examination requirements</td>
</tr>
<tr>
<td>☑ Course requirements – course changes/new courses MUST be submitted in CRAMS simultaneously with program change/new program submission.</td>
</tr>
<tr>
<td>☒ Other (please describe): Course addition (not a new course)</td>
</tr>
<tr>
<td>☐ Time-to-degree</td>
</tr>
</tbody>
</table>

1. If the program change involves changes to any existing courses (deleting courses, changing existing courses, or adding new courses), the course changes MUST be submitted in CRAMS simultaneously with the program change submission so that Graduate Council can review all affected courses with the proposed program change.

2. 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.

3. 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 and strike the deletions.</td>
<td>Insert proposed requirements on this side of the table. Underline 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

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.
☒ Completed Coversheet for Request for Approval To Modify Graduate Program Degree Requirements.
☒ Revised Catalogue/Website Copy in proper table format including Justification as indicated above. Must be signed and dated.
Memo:

Please consider our request for BPSC 246 to be added to the course catalog under the Masters and PhD requirements.

Mikael Roose, Chair of Botany and Plant Sciences

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**Current Catalog**

**Botany track**
BCH 205/BPSC 205/
CMDB 205/GEN 205/MCBL 205/PLPA 205,
BCH 231/BPSC 231, BPSC 201 (E-Z) (for a maximum of 2 units), BPSC 210, BPSC 230,
BPSC 232, BPSC 234, BPSC 237, BPSC 239,
BPSC 240 (only if taken in addition to the required seminar units; see seminar requirement), BPSC 243, BPSC 245, BPSC 247

**Plant Science track**
BCH 205/BPSC 205/
CMDB 205/GEN 205/MCBL 205/
PLPA 205, BCH 231/BPSC 231, BPSC 201 (E-Z) (for a maximum of 2 units), BPSC 221, BPSC 222, BPSC 232, BPSC 234, BPSC 237, BPSC 239, BPSC 240 (only if taken in addition to the required seminar units; see seminar requirement), BPSC 243, BPSC 245, BPSC 247

**Ph.D. in Plant Biology (Concentration in Plant Ecology)** To earn the concentration in Plant Ecology (appears on the transcript only), students must complete BPSC 245, and 8 additional units from the following list: EEOB 211, EEOB 212, EEOB 217, EEOB 230, BPSC 225J, BPSC 243, BPSC 247, ENTM 241, ENSC 218, ENSC 232, GEO 260, and GEO 268. In addition, the required BPSC 240 course must be on a topic related to the concentration.

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**Proposed Catalog**

**Botany track**
BCH 205/BPSC 205/
CMDB 205/GEN 205/MCBL 205/PLPA 205,
BCH 231/BPSC 231, BPSC 201 (E-Z) (for a maximum of 2 units), BPSC 210, BPSC 230,
BPSC 232, BPSC 234, BPSC 237, BPSC 239,
BPSC 240 (only if taken in addition to the required seminar units; see seminar requirement), BPSC 243, BPSC 245, **BPSC 246** and **BPSC 247**

**Plant Science track**
BCH 205/BPSC 205/
CMDB 205/GEN 205/MCBL 205/
PLPA 205, BCH 231/BPSC 231, BPSC 201 (E-Z) (for a maximum of 2 units), BPSC 221, BPSC 222, BPSC 232, BPSC 234, BPSC 237, BPSC 239, BPSC 240 (only if taken in addition to the required seminar units; see seminar requirement), BPSC 243, BPSC 245, **BPSC 246** and **BPSC 247**

**Ph.D. in Plant Biology (Concentration in Plant Ecology)** To earn the concentration in Plant Ecology (appears on the transcript only), students must complete BPSC 245, and 8 additional units from the following list: EEOB 211, EEOB 212, EEOB 217, EEOB 230, BPSC 225J, BPSC 243, BPSC 247, ENTM 241, ENSC 218, ENSC 232, GEO 260, GEO 268 and **BPSC 246**. In addition, the required BPSC 240 course must be on a topic related to the concentration.
**Justification:**
We request the Graduate Council to have BPSC 246 listed in the catalog as an approved course for the Plant Biology MS and our PhD emphasis in Ecology. Its absence from this list was an oversight.