Graduate Council Meeting  
June 3, 2004

Present: Ciuffetti (Chair), Bond, Collins, Fisk, Francis, Koenig, Pedersen, Pehrsson, Rettig, Schauber, Selker, Steel, Strickroth, Tadepalli, Waldschmidt

Absent: Bermudez

Guests: Ron Adams, Terri Fiez, Douglas Keszler, Ken Williamson

I. Approval of Council Minutes

The minutes from the Graduate Council meetings on May 20, 2004 were approved as corrected.

II. Minimum Credits for a PhD in Chemistry

Before 1992, the Graduate Catalog stated that “there was no rigid credit requirement; however, the equivalent of at least three years of full-time graduate work beyond the bachelor’s degree is required.” In 1992, a requirement was added that “The equivalent of one full-time academic year should of regular non-blanket course work must be included on a doctoral program.” In 1994, that requirement was modified to “The equivalent of one full-time academic year (at least 36 credits) Douglas Keszler (Chemistry) explained that prior to 1994, 27 credits of course work were required for a doctoral degree. With the increase in credits required, enrollment in the Chemistry PhD program declined. Oregon State has the highest number of required course credits among a set of peer institutions (see Appendix 1). The University of Washington requires only one-half the number of credits for the same degree. Good students do not want to take the additional course work, preferring to focus instead on research. Before the change to the 36-hour minimum, the Chemistry Department had no trouble attracting good students. The timeline to matriculation has increased from 4 years to a minimum of 5, and 6 years is becoming common. The increase in required credits, coupled with the lowest stipends and highest demands on teaching assistants, creates many problems. To keep in line with its peers, a return to the 27-credit minimum for doctoral programs in Chemistry is formally requested.

In response to a question from Lynda Ciuffetti (Science), Keszler confirmed that most graduate courses in Chemistry are offered for 3 credits.

Barbara Bond (Forestry) noted that there is a growing trend to document competency in subject matter for degrees. What does the Chemistry Department have in place to insure that students meet a minimum standard of competency across the range of courses? Keszler said that they use a comprehensive written examination. However, the focus of graduate education in chemistry is on research. Much weight in determining whether a student is competent to carry out independent research is placed on good performance in the preliminary oral examination. Doctoral studies in chemistry emphasize research; this contrasts with undergraduate education where the breadth of knowledge is emphasized.

John Selker (Agricultural Sciences) asked whether the mastery of knowledge at the undergraduate level was sufficient to teach a course at a future date. Why do graduate programs provide a higher level of education in all subjects to enable future faculty members to teach the full range of topics? Keszler noted that the Chemistry Department at Oregon State University, and our peers, provided
a broad curriculum of study. Now, the pattern is to specialize in a particular sub-discipline. Part of the pressure to specialize at OSU is that the current faculty is only 40% of its size in the recent past and the range of courses has decreased by 50%.

Bond asked for a justification for the change, arguing that the fact that other universities require 27 credits (plus or minus a few credits) is not a sufficient reason. Keszler agreed. He said that the undergraduate educational experience, which is a prerequisite for graduate work in chemistry, provides a broad base of exposure to chemistry. The PhD provides the necessary research experience for a doctorate in chemistry.

Elaine Pedersen (Health and Human Sciences) noted that the change from 27 to 36 credits was imposed on the department and was not a voluntary decision.

Selker asked what the logical basis was for any specific number of credits. He argued that the key should be whether the student had achieved the recommended training to provide basic competency. If the competency is fulfilled in the undergraduate educational experience, he would be comfortable with a minimal amount of graduate courses. Bond agreed, but argued that the graduates must be qualified to teach a variety of courses; their education should not consist solely of writing a dissertation.

Ciuffetti asked about the content of the written examination. Keszler explained that the graduate program in chemistry is divided into several sub-disciplines (e.g., analytical chemistry and physical chemistry). Each sub-discipline identifies which courses are required, provides mentoring guidance throughout the educational program, creates and grades written examinations in the respective sub-discipline.

Martin Fisk (Oceanic and Atmospheric Sciences) asked for more information on about full-time student status for one academic year. Bruce Rettig (Graduate School) explained that graduate assistants register for 12 to 16 credits, but that full-time status is defined as 9 to 16 credits. In response to Fisk’s question whether the current 36 credit requirement refers to non-blanket credits, Rettig said that it does.

Brent Steel (Liberal Arts) said that, during the most recent program review of Chemistry, graduate students said that they needed more time for laboratory research.

Bond said that she is not concerned about the reduction in in-class minimum hours, per se, but believed that a clearer explanation about the requirements was needed. Sally Francis (Graduate School) agreed that the Council needs time to explore the broader philosophical issues associated with university minimum standards for doctoral programs. Dale Pehrsson (Education) said that any other departments of programs that wish to seek similar exceptions need to present their requests more effectively than Chemistry did. The Council agreed to discuss this issue next year.

The request that the minimum number of regular non-blanket course work for a PhD in Chemistry at OSU be 27 credits rather than 36 was approved.

III. Computer Science Graduate Program Review

On March 1, 2004, the Graduate Council conducted a review of graduate programs in computer science. Barbara Bond, chair of the review committee presented the review report to the Council. She began with the summary and findings, which follow.
The Graduate Council last reviewed the graduate program in Computer Science in 1992. The recommendations that came from that review can be summarized as follows:

1. Review comprehensive exam procedures.
2. Develop channels of communication with graduate students.
3. Reduce the graduate student to faculty ratio.
4. Create sections of 500-level core courses that are separate from 400-level instruction.
5. Assess graduate student recruiting and admission, and monitor parameters for ongoing evaluation of quality of graduate students.
6. Centralize and improve facilities.

Progress has been made over the past 12 years in meeting some of these recommendations. In other areas further attention is still needed.

1. The comprehensive exam for M.S. students has been eliminated. Although the current procedures appear adequate, some of the students do not understand the rationale for eliminating the comprehensive exam.
2. Graduate students are satisfied with the quality of instruction and advising but they report feeling disconnected with departmental operations. There is still a need to improve communication and involvement.
3. The graduate student-faculty ratio in 1992 was 107/13 compared with 112/15 today; however, this includes professors Cull, Sethia, and D'Ambrosio, who have retired or will depart soon.
4. Four core courses are taught as 400/500 “slash” courses. Students do not perceive that these courses offer “true” graduate-level learning.
5. The recruitment process is largely passive and could be improved. The admission process appears to be working, although there are issues with timely notification. Improvements are needed to monitor or improve quality of graduate students accepted to the program.
6. The new Kelly Engineering building, under construction, should meet the facilities needs.

The 2004 review committee offers the following recommendations:

1. Be proactive in recruitment to increase interest and applications of students from top undergraduate institutions and of women and minorities. Develop and implement a strategy to recruit these students.
   a. Advertise OSU’s CS program at key undergraduate institutions.
   b. Develop a “feeder network” between key undergraduate institutions and CS – either among individual faculty (perhaps based on their network of colleagues) or administratively.
   c. Advertise specific graduate assistantships available through grants – this can be done both formally (professional web sites, journals, postings at national meetings) and informally (sending an advertisement as an email attachment to a list of colleagues).
   d. Faculty members in the CS department have a large number of NSF grants. Use NSF Research Experience for undergraduates (REUs) as a means to bring promising undergraduate students from outside OSU onto campus during the summers to do research directly in the labs. This could help broaden the
applicant base.

2. Improve policies for funding of graduate students.
   a. Develop a consistent policy concerning continuation of TA appointments for
      continuing students (i.e., contingent on teaching and academic performance,
      term limitations, etc). Make sure that students understand this policy before
      they start their graduate programs.
   b. Limit the size of the incoming graduate student population to only those that
      the department can fund, or only offer secure funding to one group of select
      students, while telling others that their chances for being funded are small or
      nil.
   c. Give timely notice to students concerning funding so that they can plan their
      own finances. It is also essential to give students an honest assessment of the
      likelihood for continued TA support.

3. Enhance the amount of scholarship and GRA funding for graduate students.
   a. Develop a strategy to create scholarships and fellowships for graduate students.
      Many departments use relatively small scholarships (e.g. $1000-3000/year) as a
      recruitment tool. Given the significant corporate support for CS, it is reasonable
      to try to develop endowments and gifts that provide fellowships and
      scholarships.
   b. Encourage the inclusion of graduate students on budgets for grant proposals.
   c. Work with the very best Ph.D. candidates to submit applications for NSF
      Graduate Research Fellowships. (Program officers from NSF report that
      proposals for dissertation improvement proposals are currently being funded at
      a high rate).

4. Increase the subject areas and frequency of course offerings for graduate students.
   a. To meet the curricula needs of the graduate students, the faculty strength should
      be increased to a minimum of 20 FTE.
   b. If the faculty cannot be increased to this size, look into alternative ways of
      offering courses, such as tapping into televised courses from the National
      Technological University or other universities (Chico, Stanford, Oregon
      Graduate Institute, for example). Other possibilities might include seeing if the
      University of Oregon or Portland State might be willing to allow a few students
      from OSU to attend classes in selected areas.
   c. Look seriously at the expectations and learning opportunities for graduate
      students in all “slash” courses and revise, as necessary, to make sure they offer
      true graduate-level learning.

5. Improve communications between administration/faculty and graduate students and
   increase graduate student participation in research and business activities in the
   department.
   a. Increase opportunities for students to present their work and to interact with
      faculty during the “Research Fest” (perhaps more focused sessions, get faculty
      to commit to presenting their posters, have faculty or students give short
      presentations with time for questions).
   b. Increase student input on departmental decisions such as hiring new faculty and
      departmental governance.
   c. The orientation for new students should be critically evaluated, improved and
      possibly extended.
   d. Establish a committee of three to five students to serve one-year terms as
Graduate Student Representatives (“Grad Reps”; voluntary, appointed or elected). Invite these students to attend faculty meetings. Involve Grad Reps to serve on departmental committees (e.g., planning committees for seminars and the fall orientation, selection committees for new faculty, departmental governance) with the expectation that they are to be a conduit of information between the faculty/administration and the graduate student body.

e. Ask a committee of CS and ECE graduate students (perhaps “Grad Reps”) to develop their own plan for improving ties between these student groups.

6. Increase the number of Ph.D.s in the program. Aim for eight Ph.D.s per year to finish the program.

7. Develop and maintain a mechanism to track graduate student performance after graduation.

8. To be competitive, OSU needs to find a way to create a more competitive salary structure for CS faculty.

Bond said that the review team was impressed by the quality of faculty in such a small department. The primary weakness, as seen by the team, was the composition of the graduate student body and the lack of faculty. At this point, 75% to 80% of the graduate students are international, mostly from China and India. Very few domestic graduate students are enrolled; most of them come from the local area. The review teams concluded that a more aggressive recruitment strategy was needed for domestic students. Although the percentage of women students is relatively low, this is also true for our peer institutions. Currently, there are no American Indians or black American students. This is not dissimilar from our peers, but does provide a recruitment opportunity.

Terri Fiez (Director of the School of Electrical Engineering and Computer Science—EECS) said that most of the points made by Bond are true. EECS set ambitious goals but believes that they are attainable. The student to faculty ratio, although high, is similar to that found across Oregon State University. The external reviewer did point out EECS has an exceptional faculty. Loss of these faculty members to other universities is a constant fear. EECS has developed research-cluster hiring; three new faculty members are being hired this season. The cluster research and education model is creating a unique teaching environment.

Fiez acknowledged that some students believe they are not fully informed about department developments, but noted that students are represented in key departmental decisions including faculty hiring. EECS is working to broaden student involvement.

The Research Fest not only attracted new students but also actively engaged current graduate students. This was a good experience that allowed students to learn what other students were doing and what opportunities are available for future work.

Recruitment strategies have changed to match the evolution of research clusters. The number of PhD students doubled by turning over the responsibility to the individual clusters, which are responsible for providing funding and for recruiting their graduate students.

Although EECS offered a new graduate student orientation Fall 2003, it will seek to improve this process. Teaching assistants received a one-day workshop on how to teach.

The composition of the graduate student body is a concern to EECS. Nationally, 75% of the
graduate students in computer science come from China and the Indian subcontinent. This year, there has been a large reduction in Chinese students because of problems with visas. EECS will be more proactive in diversifying its graduate student body.

Fiez did not have a specific percentage for the numbers of students who change from PhD to master’s degree programs. Although EECS has not kept track of where students go, they are working on it now. The difficulty in tracking students has been the manpower needed to do this. With the advent of on-line systems, Fiez hopes to improve on this issue.

Fisk offered two observations. First, the goal of the College of Engineering, including computer science, to be one of the top 25 programs in the country would require huge advances. Second, the external reviewer noted that computer science faculty graduate only one PhD student per person every other year. To achieve the stated goals in PhD student completion will require major changes.

Dean Adams (College of Engineering) expressed his appreciation for all the work the review team did. From his perspective, comparing the current computer science research and graduate education program now relative to what it was 5 years ago equates to an explosion. The EECS will continue to experience major growing pains and will continue to operate with a high student/faculty ratio for some time.

Bond observed that, while OSU is trying very hard to have a top-25 engineering program, so is everyone else. Current work will just keep us in the running, stated an external reviewer. To achieve more, more resources and effort will be required.

Selker, noting the national decline in foreign applicants, said he was concerned that the top ten schools will attract the good students, leaving the less qualified for OSU. In one year, there has been a 40% decline in foreign applicants. Fiez said that the decline as closer to 60%, but that this needed to change at OSU because of the overly large number of applications. She believed that EECS lost the bottom candidates. What is happening is an increase in the recruitment of domestic students, which is not a bad thing. EECS may increase the quality of its student body.

The Council approved the report of the Computer Science graduate program review.

IV. Civil Engineering Graduate Program Review

On February 10, 2004, the Graduate Council conducted a review of graduate programs in Civil, Construction, and Environmental Engineering. Dale Pehrsson, chair of the review committee presented the review report to the Council. The summary from the report follows:

**Summary of Graduate Review Recommendations:**

The CCEE Department is well placed to move forward in its program improvement mission and vision. CCEE has a clear understanding of its strengths and weaknesses.

The CCEE Department, administrators and faculty members will need to evaluate the staff and resource power needed to meet the demands of attaining the status of a Top 25 College of Engineering. The Department members articulate a desire to attract the best and the brightest in terms of graduate studies. The Department Chair and Dean wish to improve the quantity/and quality of women and underrepresented groups of students. Grant and funding
processes have been very successful but will need more focus to become a top 25 Department/program.

CCEE needs a well-defined recruitment and retention plan to market programs and attract students and needs realistic financial and administrative processes in place to support the students through the process of graduation and employment. The Department needs to implement a well-developed recruitment and retention plan for underrepresented students, students of color and women. The Department has some good systems in place and clear website information. However communications systems for students need further enhancement and organization to optimize student performance.

The CCEE Department needs to decide on its clear mission and find its professional niche. The offering of many programs with specialties can diffuse faculty energies and students resources. It is recommended that CCEE administrators and other faculty members decide on a clear vision that will catapult them to the Top 25 Program status they desire.

Research priorities and faculty load formulas need to be reviewed with graduate teaching and research commitments being considered more closely. Curriculum needs refinement; programs and classes no longer being offered need to be removed from catalog information.

During the Department review, it was apparent that faculty members understood their strengths and needs. They were forthcoming in the review, were clear about concerns and displayed a strong desire to move forward and improve. They portray a strong collegial work group with a definite esprit décor that should be preserved.

Growth necessary to achieve Top 25 Status will require retention and professional development of existing faculty members, and the successful recruitment for additional key positions. The current size of the department relative to Top 25 Programs demands that existing faculty fill a wide range of academic and administrative roles. The development of a comprehensive financial plan to provide for faculty development and growth, department expansion, and reduce the wide range of competing demands on faculty will benefit the people and programs.

We recommend that the CCEE department and faculty members revisit their strategic plan and consider innovative ways for generating additional earnings (e.g., distance learning, fundraising, professional development and short course offerings and workshops) thus, realigning it with the University’s newly adopted strategic plan.

Further, we encourage the faculty members and administrative personnel to strategically plan and prioritize for the resource demands that will develop as they strive towards program improvement and top 25 status. The department is in the process of restructuring, we recommend communicating the reorganization plan and discussing the impact on faculty and programs.

The findings of the Civil, Construction and Environmental Engineering (CCEE) Graduate Review Panel suggest that this program does have major strengths and that administrators and faculty members also recognize their needs. It is apparent that they are working cooperatively to meet the challenges they have set for themselves. Based on our findings our overall recommendation is that this program merits continuing support in meeting its goals,
challenges and aspirations.

Ken Williamson (Head of the Department of Civil, Construction, and Environmental Engineering) said that the key issue is the department’s plan to move to a different level. CCEE will expand the number of graduate students and increase the quality of the graduate experience. It needs to develop a centralized approach to accomplish this. CCEE needs centralized graduate advisors. In the past, faculty members have been responsible for performing this role. The department is currently working towards this change.

Faculty numbers in CCEE are in transition, due mainly to retirements associated with changes in the Public Employees Retirement System. The department is successfully hiring new, quality faculty. The new hires are increasing the diversity of the faculty. Of the five new hires, two are women. One of the women is Asian and one of the male hires is also Asian.

In response to a comment from Pehrsson about department reorganization, Williamson said that there is a plan to transfer the Environmental Engineering program to the Department of Chemical Engineering. He recognizes that changes of this magnitude make faculty nervous and appreciates their concern about the change.

Pehrsson shared the comments of the external review members who noted that, from a national perspective, this program is well suited to Oregon’s needs. Williamson added that the department is quite large—larger than four of the academic colleges at Oregon State University. Next year, the department expects to enroll over 700 undergrad students and 100 graduate students.

Dean Adams observed that the changes in this department have been huge. It is the most productive unit on campus. The research program, which has nearly doubled over the past five years, is prestigious. The faculty is a great group of people and is showing great spirit despite huge workloads. Faculty candidates always comment on the camaraderie of faculty.

Selker noted that most clusters of research described in the self-study indicate a need to hire one or more faculty members. He asked what plans exist for structural changes to the research clusters or other plans for resource allocation to deal with this resource issue. Is the department sustainable as currently constituted? Williamson said that, as part of the initiative to achieve top-25 status, the Department did get its share of the faculty position increases that were available. Faculty are being replaced as they retire. The department would like to grow to a level of 30–35 faculty members. Top-level institutions in the nation have no fewer than 35 faculty. CCEE enrollment numbers would support this increase.

Pehrsson noted that Selker, Fisk and Francis have suggested edits for the report. She will include these edits and send the revised report to Ciuffetti for final approval, if the Council is agreeable to that process. The report of the program review in Civil, Construction, and Environmental Engineering was approved, subject to the additional editing.

Appendix 1
Memorandum from Douglas Keszler

25 May 2004

To: Graduate Council
From: Department of Chemistry, Douglas A. Keszler, Professor and Chair

Subject: Special Exemption from 36-credit rule

The Department of Chemistry is formally requesting an exemption from the rule that requires “a minimum of one full-time academic year (at least 36 graduate credits) on a doctoral program.” Prior to the adoption of this 36-credit rule in the ‘90s, the Chemistry Department had an agreement with the Graduate School for 27 graduate credits on a doctoral program. The Chemistry Department agrees with the principle of one full-time academic year of course credit for a doctoral program, but this translates into three courses per term and 27 credits rather than 36 credits. The 27-credit guideline is more consistent with peer chemistry graduate programs. Adoption would allow us to be more competitive in attracting the best graduate students, and it will allow greater cooperation between the chemistry departments at OSU and UO.

Comparison to Peer Institutions

Minimum Number of Courses Required for Ph.D.

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<tr>
<td>University of Illinois</td>
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<td>Purdue University</td>
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<th>Quarter Calendar</th>
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<td>University of Washington</td>
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<td>University of California Davis</td>
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<td>Ohio State University</td>
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<td>Oregon State University</td>
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As noted from the tables above, among peer chemistry graduate programs OSU has the highest course demands on students. The OSU requirement is inconsistent with the very strong emphasis on research that is common for chemistry graduate programs. It is generally considered that an undergraduate chemistry degree adequately prepares students for an advanced degree, so that an extensive series of courses is not required. The imposition of this 36-credit rule has had rather profound effects on the Department’s graduate program. While most chemistry programs around the country have flourished and grown during the past decade, the enrollment in our Ph.D. program has decreased considerably. Prior to the imposition of the 36-hour rule, we had more than 75 Ph.D. students; we are now below 55 students. Certainly, the 36-hour rule is not the only contributor to the enrollment decline (past fiscal problems in the College of Science also contributed), but it is true that good chemistry students having interests in graduate school want to maximize involvement in research; they do not want to spend too much time in formal course work. Since the imposition of the 36-credit rule, we have also observed a general shift in student-body composition, drifting away from students with intense interests and productivity in research to consumers of formal classroom instruction. One effect of this shift has been an
increase in the time to degree. Prior to imposition of the 36-hour rule, several faculty in the Department were regularly able to graduate students within four years of matriculation. This timeline has now been completely replaced with a minimum time to degree of 5 years, and 6 years is becoming more common. The 36-hour rule may be perceived as a way for some departments on campus to strengthen their programs, but it has not worked so well for the Chemistry Department.

We regularly compete with schools in the UC system and the University of Washington for top graduate students. All of these institutions have course requirements that are considerably lower than our own. They are viewed much more favorably by top prospective students as research-intensive universities. We cannot expect to be consistently competitive in attracting these top students - we have the highest course requirements, the lowest stipends, and the highest time demands on teaching assistants. In selected subfields of research, e.g., those programs involved in ONAMI, we are beginning to collaborate much more effectively with the University of Oregon in recruiting graduate students, sharing resources, and generating new programs. Closing the gap in our course requirements (see table on previous page) would assist considerably in these efforts. We need to wake up and renormalize our graduate program; a relaxation of the 36-hour rule is a good place to start.