GRADUATE COUNCIL MEETING  
June 2, 2005  
3:00pm, MU Board Room

Present:  Pehrsson (co-chair), Steel (co-chair), Bond, Ciuffetti, Filtz, Francis, Koenig, Pedersen, Rockey, Tadepalli, Unsworth, Waldschmidt

Absent:  Brown, Rettig, Selker, Strickroth

Guests:  Thayne Dutson, Dean – College of Agricultural Sciences; Russ Karow, Chair – Crop and Soil Science; Ron Adams, Dean – College of Engineering; Ken Williamson, Chair – Chemical Engineering; Jeff McCubbin– Exercise and Sport Science

I. Minutes of the May 19, 2005 Graduate Council Meeting

Dan Rockey (Veterinary Medicine) stated that he believed that the minutes inaccurately summarized Shing Ho’s statements regarding the Biochemistry/Biophysics program review (page 3 of May 19th, 2005 minutes). It was decided that Bruce Rettig would work with Shing Ho to correct this paragraph within the minutes to make sure it reflects Ho’s point.

Barbara Bond (Forestry) moved and Elaine Pedersen (Health and Human Sciences) seconded a motion to accept the minutes from the May 19th, 2005 Graduate Council meeting with the suggested change. The motion passed unanimously.

II. Other Business

Dale Pehrsson (Education) noted that Lynda Ciuffetti (Science) had another item of business to discuss with Council members. Ciuffetti noted that she has still not received responses from everyone regarding the end-of-year celebration for Graduate Council members. She said that Tuesday at 5:00 most likely will be the Graduate Council end of the year party; she will confirm this by e-mail.

Brent Steel (Liberal Arts) reminded council members of the rough draft version of the PhD report that he previously sent to council members for comment. He apologized for sending the wrong version of the document. He received additional comments from members which he appreciated. Steel noted that he had updated the document, adding in Bond’s comments, and plans to send this to Council members again for comment. He thanked everyone for taking the time to comment and provide him with feedback. He will update the learning outcomes again and then send the document out for an e-mail vote.

Sally Francis (Graduate School) reminded council members that the web survey about Graduate Council Program Reviews has been completed. She noted that about fifty responses were received. She thanked all those who participated. She told Council members that she had prepared a summary which has been sent to Bruce Rettig and Mary Strickroth for comments. She
said that she would send the summary to Council members. She suggested that it could be discussed at the summer Graduate Council special meeting or it could be discussed in the fall when the Council reconvenes. Francis asked Council members their preference and noted that it may be helpful to discuss the results with the current Council members since they are more experienced in program reviews than would be the new council members.

Ciuffetti asked when the meeting is planned during the summer. Francis indicated that the Graduate School will work on identifying a time and date for the special meeting.

III. **Community College Leadership Program Follow-up Review Report**

Jeff McCubbin, Associate Dean of the College of Health and Human Sciences, presented the follow-up report of the Graduate Council Program Review of the Community College Leadership (CCLP) program. McCubbin gave a brief background of the report and stated that he met with the department to review the status of implementation of the recommendations. He stated that the committee believed that this was done in a superior manner. McCubbin said that the follow-up committee was very pleased with the progress that the department has made. He noted that there was some confusion as to which degree they were endorsing via this specific review process since there is degree authority for both an EdD degree and a PhD degree. McCubbin noted specifically that the EdD degree and not the PhD degree program had been reviewed. He said that the College of Education has made a clear distinction between the two but that sometimes they mistakenly get co-mingled together. McCubbin finished by stating that the review committee had no real concerns with the program. He said that he was available for Council members to ask him any questions they might have or to address any comments. Council had no questions or comments. Pehrsson thanked him for coming and Council thanked him for the hard work on this follow-up review.

Pehrsson called for a motion to accept the follow up report. A motion was made and seconded and the Council unanimously accepted the CCLP follow-up report, which is appended to these minutes as Appendix 1. Appendix 2 consists of material supplied by the CCLP program.

IV. **Crop and Soil Science Graduate Program Review Report**

Russ Karow, Erik Fritzell, and Thayne Dutson joined the meeting. Bond gave a summary of the Crop and Soil Science (CSS) Graduate Council Program Review report (which is attached to these minutes as Appendix 3), beginning with a summary of the review team’s findings. Bond stated that this process has been very interesting to her. The committee found the process to have both highs and lows, which often left them scratching their heads. She began by stating that CSS is a very large program with many faculty members and students. There are about fifty graduate students in the program almost perfectly divided between the Crop Science Program and the Soil Science Program. Bond stated that students who go through the program normally are quite successful and get good jobs. She believes that students are generally happy with the program and are treated well. She also stated that there is fairly good grant support for the program. Bond stated that, although many of the departmental procedures were not clear to the committee, it was clear that they were working well for the department.
Bond stated that, although the review committee believed that this was a good program, the committee did have several suggestions. While the students are happy in this program, the review team felt there was not much of an integrated, department wide program. Rather, Crops and Soils operate quite differently, effectively offering two individual graduate programs. Principal investigators are currently setting the rules for admissions standards. Bond noted that this is not different from many other departments across campus.

The graduate student recruitment process was another area of concern for the review team. They did not believe that they received enough data from the department to understand how this process worked. However, the team noted that this process has been effective and it continues to work for the department. Bond stated that it would be helpful for the department to compile data about the number of prospective students applying to the program. Who exactly are they? What proportion of the applicants is accepted? These statistics are not currently being collected by the department. The department told the review team that it would be very time consuming to gather these data.

Bond stated that it would be beneficial for the department to create an “ideal student” that they would like to have in their program. Then, they should figure out how they could get this student to attend OSU. Bond stated that many students are “pre-admitted” into the program; as soon as there is an opening a student is informed to formally apply and is subsequently admitted. She stated that this is not a bad thing but that there should be a way to evaluate what is happening, particularly in regard to selectivity.

Bond said that the current graduate student population is very diverse and that CSS is doing an excellent job in this regard; it is a model for the campus. The review team believes that students are well supported. Statistics would have been helpful to analyze this issue, particularly the statistics surrounding scholarships and fellowships. Bond stated that it would be helpful to have scholarships available to students to support grants and fellowships.

The review team had several recommendations about curriculum. One of the strengths of the program was that it is highly interactive across campus. Bond noted that the department is weak in offering its own stand alone graduate courses but that they meet the fifty-percent rule by relying on other departments. The team believed that it would be good for the department to reallocate some of the resources from the undergraduate program and to improve the graduate program. Bond stated that better metrics would be helpful to evaluate how students were doing in the program and how long it is taking them to complete. She believed that graduate research assistants are all evaluated but that this is not the case for all other graduate students. The team felt that a department-level evaluation to track departmental success would be very useful.

Bond stated that the team was able to talk with only three students. She hypothesized that holding the student meeting on the other side of campus from students’ offices/classes may have contributed to the poor turnout. Therefore, Bond felt that the student input was not representative of the whole student population. But, the students the team spoke with did express some concerns. One concern was slash courses. Students felt that they do not get a good graduate level
experience within slash courses. Bond noted that this is not a new concern for students as many graduate students across campus feel this way. Nevertheless, students are graduating from the CSS graduate program and successfully finding jobs. However, offering a course, perhaps a one credit course, on professionalism would be a helpful addition.

The team determined that the department has great faculty. All faculty CV’s were available to the review team. Bond noted that it would have been useful if the department would have summarized the CVs in regard to faculty productivity rate, grants and so forth. Bond noted that while this department has excellent faculty members, two good faculty members have been recently lost. This is not a problem specific to this department. Bond stated that the department should be careful so that more faculty members are not lost. Determining what the department can do to keep faculty members here would be good. She thought that thinking about how the department can address the needs of Oregonians could help the department gain a higher profile. Over the short term, it is clear that faculty salaries should be increased but the resources to do this are not currently available.

Another recommendation that Bond addressed was the development of a seminar course. One suggestion was to pair crop and soil students and give them a budget to develop this seminar.

Theresa Filtz (Pharmacy) added that the team had very little external perspective for this review. The department did not locate anyone from industry to participate in the review. The external reviewer with the CSREES team had industry experience, but did not have time to provide the committee with feedback. Filtz believed that this was disadvantageous to the program review since CSS has such an internally focused perspective. She also found it frustrating that only three students attended the meeting with the team. Filtz noted that when the team met with faculty members, it appeared that the faculty did not want to talk to the review committee. It was hard to get information from them. She concluded by stating that this program works extremely well if a student is associated with a good laboratory guided by a good mentor.

Bond believes that students leave this program with a crop and soil degree. The department needs to be more accountable for providing the necessary breadth to reflect this joint perspective.

Pehrsson thanked the committee for their report.

Bond added that she had one additional comment. This is a very large department and the team believes that the department head is doing a great job. She raised the question as to why these two departments, crop science and soil science, are together? Bond believes that they operate so separately that it is not obvious why they were ever combined.

Pehrsson introduced Dean Dutson who said that the merger of the two departments in 1990 was due to a number of factors. Measure 5 (property tax limitation approved by the citizens of Oregon) and the subsequent reductions in state supported budgets contributed to the downsizing of faculty numbers that occurred at that time. Dutson commented that there are many departments nationally that combine crop and soil science so this is not rare. Dutson believes that faculty feel ownership of both programs but that they like the disciplinary loyalty.
Karow commented that the degree that students earn is either a crop science degree or a soil science degree; a combined degree has not been established. The programs are in separate buildings, they are very disciplinary, and they both started from different places and have moved to different places. Karow said that they do have a fall seminar in which graduate students are required to give a seminar, to learn who the other graduate students are, and to learn about the diversity within the department. Karow commented that the seminar is not well attended. Many people do not come because they have stronger ties to another department. With limited time available, they choose to attend seminars in other departments or programs. Karow believes that it would be possible to plan a combined seminar in the future. He believes that these seminars are important to the department. They are also important to students because seminars give students an opportunity to work on presentation skills.

Karow generally agreed with Bond’s comments. He believes that this department has excellent faculty members that work within the various concentrations. However, Karow stated that there are many collegial groups in this department and since it is such a large diverse department a student in one concentration may have no idea who you are if you are in another concentration. Karow then agreed with Bond’s comment that if you are a student in one field, you may in a very good learning and working environment, but if you are in a different field, especially one with a smaller group of students and faculty, the support system may be less effective.

Karow believed that the concept of an ideal student was a helpful suggestion and was something that the department could do. He said that they have started this process by examining what a crop science student should know when he or she graduates. They then reason backwards to ensure the program gives the student what is needed to succeed in industry. Karow stated that the students’ comments on a professionalism class were interesting. He acknowledged that this may be helpful to students; some of his students who graduate and then work in a university setting are unclear about the various processes that take place in that setting. Karow then commented that a one credit course on this topic could bring all of their graduate students together.

Dutson commented on faculty hiring. He believes that having faculty hired by other sources of employment is a problem that they currently face. He went on to describe the causes. First, salaries at OSU are low compared to comparable institutions. Dutson believes that the Provost and the Dean’s Council were working on this but that there are many problems to be faced in addressing this issue. If OSU hires people at salaries needed to be competitive, salary disparity can occur relative to senior faculty. Another factor is the current salary freeze, which has limited the opportunity to make salary adjustments. While this is frustrating to many people across campus, Dutson believes that there is nothing that can really be done about this now. He went on to say that, since the beginning of 2001, they have lost eighty faculty members. Most of this was due to retirements but some faculty left for other jobs. Since the early part of 2001, only twenty people have been hired to offset the eighty people lost through retirement and resignations. Therefore, it has been very difficult to maintain diverse expertise. Dutson stated that the department would like to hire more faculty, but given the current situation it is difficult.
Commenting on the review process, Karow admitted that they would do this differently next time. When this graduate program review was being conducted they were also having a CSREES review conducted. He stated that the faculty has much more interest in dealing with the CSREES reviewers and devoted more time and energy into that review. Next time they will have these reviews conducted at different times. Filtz asked whether it would be more effective to have separate program reviews for the crop science program and the soil science program. Filtz thought that the next time these reviews took place, the Council should ask to have more separation between crops and soils. She believed that it is really difficult to bring these two programs together.

Karow believes that there needs to be a large umbrella overseeing the department and the different programs and bringing them together.

Bond made one more comment regarding this graduate program review. She asked the department to not take its graduate programs for granted. From talking with students, she concludes that this is a good program, but she believes some things could be changed. Bond suggested that they provide an opportunity for students talk to people they trust in a safe place where they feel like they can share information about how things are going and make suggestions for improvements. She thinks that this would be very valuable for the department.

Dutson asked Bond if she had any ideas why the faculty was so quiet when they met with them. Bond thought that it may have been the questions they were asking. The quietness of the faculty members made the team curious. Filtz felt like the faculty were annoyed by the review team and that this review was not something they wanted to deal with. Pehrsson wondered if the faculty did not appreciate the purpose of the review. She wondered if the goal of the review was not communicated well enough.

Pehrsson thanked everyone for their hard work with this review and asked if the Council had any questions.

Tadepalli said that most departments have core curriculum classes that graduate students take. He believes there are some disciplinary concepts that students should learn outside of their research focus. Karow said that in soil science there are a few core courses, such as statistics. However, many students come into the program already having taken this “core.” He thought it would be interesting to look at the transcripts of the prospective students to see what classes they have already taken and thus, what competencies they already possess before entering the program. Karow noted that crop science is much more complex. He believes that there are core classes each crop science student should take, such as plant physiology classes. But, few of these classes are offered any longer. He also noted that there are few classes that would provide a common core since crop science students have a fairly narrow research focus. Classes need to be selected with training targeted on a specific set of research topics. This is needed to make efficient use of students’ time.

Pehrsson again thanked the review team, Karow and Dutson for their work on this review. Dutson and Karow thanked the team for their hard work.
During Council deliberation of the report, Bond noted that she would have liked to have had more information at the time of the review. Filtz commented that she is interested in what the follow-up report might entail since she did believe that Karow offered many comments or feedback about the review. Ciuffetti asked the Council if it was not relaying enough of what is wanted and expected from the department in a program review self study. Bond felt that it was clear what the department was supposed to do, but they just did not do it. Steel felt that the department was not responsive. Bond acknowledged that the review team believed that they were not responsive because they have a good program and it is working well for them. Filtz reminded the Council of Karow’s comment about the Graduate Program Review not being their highest priority at the time. Bond noted that the necessary material was not included in the self study document. The department told the review committee that it would be too time consuming and troublesome to gather all of the material requested.

Ciuffetti commented that Botany and Plant Pathology had a combined CSREES and Graduate Council Program Review together and took it very seriously. She wondered if the council should do something since Bond and Filtz felt so strongly about the outcome of this review. Bond suggested that the Council place the responsibility on the department to show the Council that they have a good program before the report is formally accepted. Pehrsson noted that the program review report had strong recommendations that need to be addressed. Tadepalli noted that they should be required to show that they have a good graduate program and that it is strong and rigorous. Bond believes that it is up to the department as to how seriously they want to take it a program review; she feels that they have a program where students are graduating but the department has decided not to take the program review seriously.

Steel and Pehrsson thought that the review team’s recommendations were very clear. Pehrsson noted that if the graduate council accepts the report the follow-up report would be very important for tracking progress.

Ciuffetti reminded council members that the review committee did not feel they had the materials they needed to evaluate many aspects of the program. She believes that the Council cannot accept the report until they see the necessary materials. Pehrsson said that the Council could delay the process and that if they accept the report now the department will be required to provide this information at the time of the follow up report. Bond felt that the two-year follow up review would be sufficient.

Francis questioned how the Graduate Council would back up a decision to not accept this report. She asked whether the Council whether admission in the program should be suspended.

Rockey reminded the council that what the department is doing now, although unclear to the review team, apparently is working. He suggested that the council should let them continue as they are doing, as long as what they are doing is working. Pehrsson would like evidence of how well it is working. Bond would like the department to take accountability by showing what the product of their program is and how they assure quality.
Pehrsson asked Council members if they would like to accept the final report but to include an expectation for the department laying out exactly what needs to be done. Council members agree to accept this report with the stipulations that Pehrsson laid out; the motion was accepted unanimously.

V. Chemical Engineering Graduate Program Review Report

Ciuffetti introduced the Chemical Engineering Graduate Program Review Report, which is attached as Appendix 4. She said that the review team had good interactions with the external reviewers and that their insights were very helpful. Bob Powell was excellent and heavily relied upon by the committee. Ken Williamson, head of Chemical Engineering, provided a self study that included all the necessary information.

Ciuffetti noted that Chemical Engineering has had a re-birth with a much higher focus on research. They doubled their program in 2000 and added new and diverse faculty. In the late 1990’s the department faced administrative problems. Thanks to Williamson the department has changed; faculty members really see Williamson as a very positive person. The department believes that adding bioengineering will make their situation even better. Specific recommendations are outlined in the final report.

The review team found that the faculty members have graduate degrees from the top chemical engineering departments in the country. These faculty members also embrace people from other departments, such as chemistry, which allows for a broader resource base for students. It was noted that there is a potential merger with environmental engineering. The review team did not know how the outside reviewers and faculty members would react to this but they were pleasantly surprised at what they found. However, some problems were also discovered. One problem was the delayed promotions of several associate professors to full professor. Ciuffetti stated that the team believed that the department should look at this. If this is true and if it was caused by poor leadership, it should be corrected.

The number of PhD students in this department is very small although the department intends to increase it. The team would prefer to see a higher enrollment target than what the department has set. In general, graduate students felt that they had very strong social bonds between each other even though they are few in number. They noted a few things that they were not pleased with. One was the organizing and formatting of their preliminary exams. Greg Rorrer provided leadership in restructuring preliminary exams; Ciuffetti believes that Greg has made a difference in this process and that students are now happy with the revised process.

Ciuffetti said that they found that GRA and GTA stipends are very competitive, but the fees that this department requires the students to pay dilute the competitiveness.

The program review team did not feel that the facilities were adequate in this department. They did not feel that there was adequate desk space or lab space and that materials need to be looked at.
Ciuffetti made it clear that the committee felt that exceptional leadership is needed for the continued growth and development of this program. Williamson is providing excellent leadership for this department but it is clear that he will want to retire at some point. The committee believes that a discussion needs to take place with the dean, chair and faculty to determine how they will handle things upon Williamson’s retirement.

Not all areas of specialization are located together; the department should look at this, especially with the potential mergers. The proposed mergers will be beneficial, but the different programs will have very different cultures; this needs to be looked at more closely.

Ciuffetti said that the department should stress external funding of faculty and that the team believes this is the key to development for the department. They should develop recognition for international funding.

Ciuffetti asked if Rockey had any comments that he would like to add to her report. Rockey added that this is a good department. He believed that facilities were a large problem. He also noted that the square footage per faculty member is already limited; if you increase the number of faculty in the given space, this will be more of an issue. He reinforced Ciuffetti’s statement that continuity and leadership in this program will be difficult when Williamson retires.

Dean Ron Adams noted that this graduate program is in transition as a discipline. Previously it was largely centered on the pulp, paper and oil production industries; those industries have declined a great deal. The department’s focus is now more on the electronics and the micro technologies industries. Adams then noted that he took over as dean only three years after the bioengineering department came into the College of Engineering and that it has been hard to hold things together and determine where that department will go from here.

Williamson said that they saw the opportunity to pull these departments together and bring about a positive change. He believes that the aftermath of the bioengineering move has taken some time. In 1995 there were six faculty members in chemical engineering and in 2006 they are planning to have about 17. This department would really like to be a high technology research facility do high level PhD research. Williamson noted that they are not very interested in turning out undergraduates. He suggested that the faculty members question some things periodically but that the department does know where they are headed. They have the vision and have been trying to get there. They will be the only department in the United States to have all three of these areas combined. Williamson suggested that they are also trying to increase research funding. In 2000 it was $220,000 and this year they are garnering about $1.5 million. They are estimating this to be about $2.5 million next year. When they bring in the department of environmental engineering, research will increase to about $5 million. Williamson noted that the facilities in Gleeson hall were made for chemical engineering students and that it is largely out of date. They department does have plans to remodel but they do not yet have the funding. He believes that the alumni do have the capacity and wealth to put this together and that there are just some logistics standing in the way.

Pehrsson asked how they plan to transition when he decides to retire. Williamson believes that
when these three departments merge, his position will be a dream job for someone especially since it will now have a biological area.

Williamson commented on graduate student support. He said that there were no GTA’s when he arrived and that he has raised the GTA stipend 10 percent a year since he has arrived. He said that he needs to do this two more times to be competitive. He noted that he has been cautious about going too fast in fear of creating disparity. He believes that the department competes very well and has a great international reputation.

Adams responded to the council’s question on leadership. He said that he would like Williamson to stick around as long as possible and that he believes that Williamson is doing an excellent job. He also has faith that Williamson will build something that will be very attractive before he decides to retire. Adams noted that there have been many leadership transitions over the past 5-10 years so he would like to keep Williamson as long as possible. Adams agrees that this department has had many struggles in the past but, thanks to Williamson, they have made a lot of progress and things have been going better. There are a lot of great faculty members here that work hard for this department. They work with a group of very talented people and Williamson has been able to unleash this talent among faculty members.

Pehrsson asked the Council for questions.

Tadepalli said that he believes that these three areas merging into one is a good idea. He asked if the department is planning on having one graduate program combining all of these areas. Williamson said that the department is planning on maintaining separate degrees for each of these programs but they would like to possibly have an interdisciplinary program as well.

Rockey stated that there would be a follow up review in 2 years. He believes that it would be great to lay out the leadership problems and the transition process in the follow-up. He thinks that it would be beneficial to see the transition plan and a succession plan for when Williamson retires. Faculty may want to have a role in deciding how to carry out this process. However, Ciuffetti noted that if Williamson is planning on sticking around for awhile, this conversation may be premature. She noted that the committee found this such a critical component because of concerns they heard throughout the day about this and also past issues. This process will be very critical for this department to be continually successful.

Ciuffetti noted that students were also concerned with professors teaching out of their expertise. Students thought that some of the courses were not being taught with the expertise that was needed. This was apparent when they had a chemical engineering course being taught by someone not in this field. This concern is included in the committee’s recommendations. Williamson said that this is a unique situation and he believes it was blown out of proportion. He also noted that students and faculty are very sensitive to this issue. Ciuffetti acknowledged that this could have been the case.

Williamson stated that having three departments come together like this and work together under the chemical engineering culture is a very difficult task that takes a lot of work. He thinks that
when this is all done that it will be unique and competitive. Williamson commented on Ciuffetti’s statement about promotion issue and said that this year his department put two people up for promotion and both were promoted.

With no further questions from the Council, Pehrsson thanked the team for their hard work. Adams and Williamson also thanked the committee. Tadepalli moved to accept the report and Filtz seconded it. The motion was accepted.

VI. Statistics Graduate Program Review Report (continued)

Koenig prepared a handout in response to the prior request for more specificity in the review team’s recommendations. Koenig that the recommendations in the section entitled “Summary of Findings and Recommendations” be replaced with the following:

Recommendations:

- The College needs to fund two additional faculty lines (2.0 FTE) in support of delivery of statistics courses and consulting.
- Additional funding from the College of Science must be provided to increase graduate stipends at least 20%.
- Funding for minority scholarships should be found and used for recruiting.
- The Department must decrease the amount of unpaid consulting and the number of graduate committees they serve on.
- Growing the Survey Research Center should be a priority too, especially if it can be accomplished by bringing another faculty member who can share the teaching load while also managing surveys. The presumption is that most of the financial support for this position would come from “soft” money.
- An aggressive program of specialized courses is needed; we recommend offering at least one additional, special topics course per year. This would produce a large benefit for the department as both students and faculty would be exposed to new and emerging topics in statistics.
- Providing adequate computer support for graduate students is imperative.

He stated that the funding would have to come from the College of Science since the department does not have the funds available internally. Ciuffetti stated that it would be hard for the Dean of COS to give this to only one unit and not to others.

With no further comments Pehrsson asked if there was a motion to accept the Statistics report. The Graduate Council voted and the motion to accept the report as revised passed unanimously.
The review team and representatives for the CCLP program met on 17 March 2005 for the purpose of discussing the response of the CCLP program leadership to the full review, conducted on 7 June 2002 and reported to the Graduate Council on 28 October 2002. Present were Jeff McCubbin and Vince Remcho (members of the 2002 review team) and Sam Stern and Rich Shintaku. In advance of the meeting, Shintaku prepared a follow-up review summary document (attached) that details the response to the specific recommendations of the 2002 review panel.

The review team sought specific responses to the following questions:

1. How has the program changed and grown since the full review in October 2002?
   While the absolute number of students has remained essentially the same at ~14 per cohort, there has been a reported improvement in program quality and preparedness of entering students for graduate study. No data were presented on program quality, but anecdotal information and critical information about % of minority applicants and geographical representation were shared with the reviewers. The CCLP program is one of very few programs of its type nationally, and as it has become more widely publicized the number of applicants has grown. According to Stern and Shintaku, this has resulted in the institution of a more selective admissions process and a concomitant increase in student capability. Acting on recommendations from the review panel, the program has become more academically rigorous, as addressed below.

2. How has the faculty contingent with direct responsibility for the program changed in the past 2 years?
   There have been significant changes in the faculty in the School of Education due primarily to retirements. The CCLP program has been affected by these changes, though the impact has largely been positive in part owing to the hire of a faculty member whose efforts are having a direct impact on program quality. Several faculty remain involved in the program following retirement. Faculty participation in the CCLP program is as follows:
   - Alex Sanchez (~0.7 FTE)
   - George Copa (~0.5 FTE)
   - Rich Shintaku, director (~0.25 FTE)
   - Darlene Russ-Eft, hired since the 2002 review (~0.5 FTE)
   Betty Duvall, Director of the CCLP program in 2002, has retired yet is still teaching two classes and supervising students. There are several fixed-term, part time instructors who assist in offering coursework that is key to the program. Roughly 60% of the coursework component of the degree is taught by regular faculty.

3. The program web site lists a Ph.D. program in community college leadership. This degree program was not reviewed in 2002 and did not appear to be offered at that time. Are students pursuing this degree?
   Stern has conversed with representatives in the Graduate School regarding degree offerings in the School of Education. The School currently offers two doctoral degrees: an Ed.D. in Education and a Ph.D. in Education. The degrees are not program specific according to Stern, such that students may pursue either degree and focus their studies in a way that allows them to address their particular professional interests. The degree requirements for the Ph.D. are different than those for the Ed.D.
Apparently some of the current cohort of students are in the Ph.D. program, while others are in the Ed.D program. It is too soon to determine if this will be problematic (creating confusion in applications etc.).

4. How have the commendations of review team been met (i.e., how are you building to existing strengths)?
   a. Preparing needed community college leaders and administrators.
      The program remains popular with professionals working in the administrative ranks of community colleges in the region, and is well respected regionally and nationally.

   b. Format that is conducive to part-time students.
      The off-site, weekend format of the program continues to be popular and successful. Efforts have been made to enhance connectivity to the Corvallis campus and to enhance the technology elements of the Silver Falls “classrooms”. School of Education did seek internal computer resource fees to enhance the capability of the connectivity for the program, but it has not yet been funded.

   c. Faculty involvement and personal commitment to the program.
      A new hire whose area of research is directly aligned with one of the major areas of concern in the 2002 review has enhanced the quality of the program. Faculty support for the program remains strong, though time committed directly to the program by the various faculty remains small. A planned hire during Spring 05 will add to the faculty in this program. There remains a recognized need for faculty in the program whose area of research is CCLP related research.

   d. Capitalizing on the Silver Falls environment.
      Students and faculty continue to interact in formal and informal discussions at the Silver Falls site. The relaxed environment is universally appreciated, though access to teaching resources is quite limited and likely cannot be addressed at this site.

   e. Improving retention and completion statistics.
      The format of the program is ideal for those who are pursuing a graduate degree while working full time. This has allowed the program to maintain a high rate of retention and degree completion.

   f. Positive reputation of the program.
      ……

5. How have the recommendations of the review team been addressed?
   a. Establishment of an external, impartial advisory board.
      This has been accomplished. An external advisory board has been assembled for the School of Education, though it is not program specific. The membership of the board is enumerated in the attached documentation. Additionally, a Development Board has been appointed.

   b. Strengthen assessments of the coursework component of the curriculum.
      The portfolio guidelines have been extensively revised and strengthened (and are attached). The goal is to have the portfolio be less a “personal reflection” and more a “synthesis of learning” document.
c. Expand the program to serve a larger and more widely distributed population.
   A new and similar program starting at UC Davis has increased the level of competition for attracting qualified students, though the reputation and history of the OSU program has allowed it to continue to be the most recognized of its kind regionally. Students travel from Utah, Arizona, Washington, California and Hawaii to participate in the program at Silver Falls. 30% of the students are students of color, and most are non-traditional students returning to school after a long absence. According to the program director, all students in the program are working professionals, many of which assume academic and administrative leadership roles in community colleges and other higher education settings.

d. Enhance and improve the coursework requirements by adding statistics to the curriculum, etc. The hire of Darlene Russ-Eft has been the major factor allowing the program to respond to this recommendation of the 2002 review team. Russ-Eft’s expertise is in academic assessment, and her experience with experimental design and quantitative analysis have factored largely in shaping the new coursework requirements of the program. The specifics of the new courses are outlined in the attached self-study documents.

e. Change the structure of student committees to foster peer review of the program and its outcomes. New guidelines for committee composition have been implemented and are detailed in the attached material.

Recommendations of the review team:
1. The reviewers commend Shintaku/Stern for critically evaluating the previous full review and working to address areas of need as identified by the review team. We recommend that efforts to extend and enhance the academic rigor of the program be continued.
2. We further recommend that the director solidify the roles of the various faculty who are involved in the program and make their commitments to the program more public.
3. We recommend a review of the degree offerings of the School of Education, in particular those degree offerings that relate to the CCLP program, with clarification on what degree programs are available and in what areas of specialization. This review should involve the Dean of the Graduate School, the Dean of the School of Education, and the directors of the various programs within the School of Education that offer graduate degrees.
Appendix 2

Community College Leadership Program Follow-up Review:
Unit Summary of Reaction/Response to Report of Review Team and Specific Actions Taken to Address Recommendations
March 2005

With the constant demand for quality and effective leadership in a variety of educational and workplace settings, the Graduate Council program review of the community college leadership program could not have come at a more opportune time. In 2002-03, the program faculty and staff welcomed the opportunity to conduct a self-study and participate in an open and thorough review of the program. The recommendations set forth from the review team clearly reinforced the desire to be recognized as one of the premier and nationally-recognized graduate programs in higher education leadership with a specific emphasis in community college leadership. Utilizing the report’s summary of recommendations, the following provides a brief update of the original response/reaction and implementation plan.

1. Set up an advisory council with members of faculty, community college administrators, and outside evaluators involved in research on community colleges (such as a professor from another university), to evaluate the program content to assure that the rigor and content meet the standards set in the field.

   Since our initial graduate program review, both an advisory board and development council have been established in the School of Education (attached) for the purposes of supporting the mission, vision and values of the School along with providing ongoing program feedback, development and support. Among those on the advisory council include Dr. Mary Spilde, President of Lane Community College; Dick Swanson, Professor of Human Resource Development and Adult Education at the University of Minnesota; Dr. Mildred Ollee, President of Seattle Central Community College; and Dr. Hiromitsu Muta, Professor and Director of the Center for Research and Development of Educational Technology at Tokyo Institute of Technology.

   In addition, we have also updated our membership in Council for the Study of Community Colleges (CSCC) and are now actively involved in the Council’s activities. An affiliate of the American Association for Community Colleges (AACC), the purpose of the Council is to conduct and disseminate research pertaining to community colleges; serve as a forum for dialogue between university professors, graduate students, and community college practitioners who study community colleges; and to contribute to the development of pre-service and in-service education for community college professionals. Council members include university-based researchers and community college practitioners who further scholarship on the community college enterprise.

2. Strengthen the assessment of the coursework portion by providing specific guidelines for the portfolio, the option of a formal written examination, or some combination thereof, or consider alternatives to the reflective portfolio/essay for the prelim exam. This assessment should be directly related to the course content and should be something that addresses doubts regarding the rigor of the program.

   As the result of program development, thoughtful consideration and coordination, the doctoral program portfolio guidelines have been strengthened with particular attention given to the evidence of accomplishing program outcomes (attached). In addition, a more rigorous and intentional process has been developed including the option of a formal oral and written examination.
3. As resources become available, expand the program in order to serve more doctoral students throughout the Western States.

Specific to resource development, the department is currently in the process of adding two new tenure track faculty lines, one of which will have primary responsibility for the CCL program. In addition, interest in the doctoral program has increased tremendously in the last three years demonstrated by more diverse student candidates as well as program selectivity. Current demographics include students of color (approximately 30%), sexual orientation diversity, gender balance, as well as geographic diversity. Current students are commuting monthly from Utah, southern and northern California, Hawaii, eastern and western Washington, and Oregon. As a result of an overwhelming increase in prospective students from California, we held our first admissions outreach event in northern California (Sacramento) hosted, in part, by one of our current students and Cosumnes River Community College president, Francisco Rodriguez. Diversity remains a priority for the program as we strongly embrace the relationship between academic excellence and diversity.

4. Ensure that students obtain sufficient education in quantitative analysis of data and in experiment design. Add at least one true statistics course to the program preferably one that also introduces students to a statistical program they can use. This seems to be fairly standard in other such programs and is a notable omission here.

With the addition of program faculty who possess specific knowledge and experience in quantitative analyses and experimental design, we have added both rigor and clarity to our statistical analysis requirement as well as a recently approved checklist for meeting this requirement (attached). Beginning this year, we have added two new course offerings to our research series, Quantitative Analysis in Educational Research I: Introduction and Descriptive Statistics and Quantitative Analysis in Educational Research II: Introduction to Inferential Statistics.

5. Require only one community college (adjunct) member on Ed.D. committees and permit faculty from other departments at OSU (such as statistics, philosophy, political science, etc.) to participate. This will foster critical, regular, periodic peer review of the program and its outcomes.

Since our graduate program review, we have established new guidelines for the selection of adjunct faculty for graduate program committees (attached). Included in the new guidelines is a change in the requirements for committee composition as well as including specific guidelines for selecting adjunct faculty members.

Attachments include:
- Advisory Board membership list (see http://oregonstate.edu/education/advbrd.html)
- Development Council membership list (see http://oregonstate.edu/education/advbrd.html)
- Doctoral Program Portfolio Guidelines
- Checklist for Meeting Statistics Requirement
- Guidelines for Selection of Adjunct Faculty for Graduate Program Committee

March 2005
Community College Leadership Program  
Oregon State University  
School of Education

Doctoral Program Portfolio Guidelines

Purpose
1. Serve as alternative to preliminary written examination
2. Written documentation of student’s understanding of major field (mastery of outcomes for community college leadership program)
3. Written documentation of capability for research

Suggested Assessment Guide
1. Title Page – The student has provided a title page for the portfolio that identifies the candidate.
2. Membership of Preliminary Examination Committee – The student has provided list of names and positions of those serving on her/his preliminary examination committee to include: (1) for the Ed.D: the major professor, School of Education representative, Graduate School representative, and courtesy faculty (2), and (2) for the Ph.D. the major professor, School of Education representative, Graduate School representative, another OSU faculty member, and courtesy faculty (1).
3. Professional Introduction – The student has provided a brief introduction to her/his professional interests and plans. The professional introduction is limited to 1 page.
   • Professional Interests – A brief description is provided.
   • Professional Plans – A brief description is provided.
   • Evidence of Accomplishing Program Outcomes – The student has provided adequate evidence that each program outcome has been accomplished. The evidence for each learning outcome includes: (1) synthesis of the learning in the program that informs the student’s educational practice with regard to the learning outcome (to include theoretical underpinnings, promising practices, current issues, and future directions); (2) reflection on the learning in relation to the learning outcome (to include integrating learning with one’s professional philosophy and practice and raising significant issues for further thinking, learning, research, and practice); and (3) a specific plan for continued learning in areas of most need regarding the outcome. The presentation of evidence is limited to 30 pages in total. Exhibits of selected evidence are provided in the appendix to the portfolio (give emphasis to accomplishments during doctoral program)
   Education includes the following:
   • Courses,
   • Academic work (e.g., papers; presentations; project reports; internship reports),
   • Assessments by instructors, mentors, supervisors, peers
4. Appendices – The student has provided the following background information:
   • References, using APA format
   • Current Resume
   • Program of Master’s Study – list of course titles, course descriptions, credits, and grades
   • Program of Doctoral Study – list of course titles, course descriptions, credits, and grades
   • Selected exhibits from the educational program (not to exceed 30 pages)

Process for Review
The portfolio will be reviewed by the members of the student’s Graduate Program Committee who are from the major (i.e., Community College Leadership) prior to the Preliminary Oral Examination. The review will be administered by the student’s major professor. The portfolio will continue to be revised until it meets the approval of the review group of faculty. Final results of the review will be reported by the student’s major professor to the Graduate Program Committee at the Preliminary Oral Examination meeting.
## Community College Leadership Program

### Checklist for Meeting Statistics Requirement

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<tr>
<th>Area of Competence</th>
<th>Know</th>
<th>Able to Do</th>
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<tbody>
<tr>
<td>Vocabulary of statistical analysis</td>
<td>Measurement scales (i.e., nominal, ordinal, internal, ratio)</td>
<td>Able to comprehend and critically review reports of research that use statistical analysis</td>
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<td>Hypotheses (i.e., null and alternative)</td>
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<td>Statistical significance</td>
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<td>Types of statistical error (i.e., Type I, Type II)</td>
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<td>Power analysis</td>
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<td>Population/sample</td>
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<td>Beta weights</td>
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<td>Coefficient of determination</td>
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<td>Correlation (i.e., positive, negative)</td>
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<td>Correlation matrix</td>
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<td>Covariates</td>
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<td>Types of variables (i.e., dependent, independent, predictor, intervening, moderator)</td>
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<td>Critical region in distribution</td>
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<td>Frequency distribution</td>
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<td>Linear and curvilinear distribution</td>
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<td>Interaction effect</td>
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<td>Effect size</td>
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<td>Types of statistical tests (i.e., parametric, non-parametric)</td>
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<td></td>
<td>Types of statistics (i.e., descriptive, inferential)</td>
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<td>Reliability tests (i.e., Kuder-Richardson split half, Spearman-Brown, test-retest, Cronbach alpha)</td>
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<td>Types of effects (i.e., main, secondary)</td>
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<td>Measurement</td>
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<td>Probability sampling</td>
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<td>P-values</td>
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<td>Randomness</td>
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<td>Regression</td>
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<td>Regression line</td>
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<td>Regression tables</td>
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<td>Reliability</td>
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<td>Sample size formulas</td>
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<td>Sampling error</td>
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<td>Scatterplot</td>
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<td>Statistics</td>
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<td>Variable types</td>
<td>Able to comprehend and critically review reports of research that use statistical analysis</td>
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<td>Types of sampling distribution (i.e., normal, non-normal)</td>
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<td>Skewness and kurtosis</td>
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<td>One and two-tailed tests</td>
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<td>Chi-square analysis</td>
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<td>T-tests and other paired comparisons</td>
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<td>Analysis of variance</td>
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<td>Factor analysis</td>
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<td>Regression analysis</td>
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<td>Structural equation modeling (SEM)</td>
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<td>Discriminate function analysis</td>
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<td>Meta-analysis (purpose and procedures)</td>
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<tr>
<th>Descriptive statistics</th>
<th>Frequency distribution</th>
<th>Comprehend and critically review research reports that use descriptive statistics</th>
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<td>Table and graphic presentation</td>
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<td>Measures of central tendency (i.e., mean, median, mode)</td>
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<td>Measures of variability (i.e., standard deviation, variance, interquartile range, range)</td>
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<td>Measures of relative standing (i.e., standard score, z-score, percentile)</td>
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<td>Measures of relationship (i.e., correlation)</td>
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<th>Introduction to probability and inferential statistics</th>
<th>Introduction to Chi-square analysis procedures</th>
<th>Judge appropriate use of inferential statistical tests</th>
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<tr>
<td>Introduction to T-test analysis procedures</td>
<td>Interpret levels of significance and types of errors</td>
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<td>Introduction to analysis of variance procedures</td>
<td>Use normal distribution tables</td>
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<tr>
<td>Introduction to multiple regression and structural equation modeling (SEM) analysis procedures</td>
<td>Interpret and judge appropriate reporting formats for inferential statistics</td>
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<td>Introduction to factor analysis and discriminate function analysis procedures</td>
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**Note:** “Introduction” means understanding of appropriate use, and interpretation of results.
Community College Leadership Program  
Oregon State University  
School of Education  

A. Guidelines for Selection of Courtesy Faculty for Graduate Program Committee  

II. CCLP doctoral program committees will be made up of five individuals, at least three faculty members at Oregon State University and up to two courtesy faculty members approved by the CCLP faculty, the School of Education, and the Graduate School. Initial approval of CCLP faculty will be made by the Chair of the Department of Adult Education and Higher Education Leadership in consultation, as needed, with the CCLP faculty.  

The courtesy faculty members must present evidence of the following nature to qualify for appointment:  

1. An earned doctorate in from an accredited institution.  

2. Five years experience in significantly responsible positions in higher education and preferably in a community or technical college.  

3. Significant scholarly achievement in community college/ education through published articles or books, presentations at recognized education professional organizations, or research and development that have led to educational changes and improvements (i.e., curriculum development, strategic planning, program assessment and accreditation, professional development).  

4. Significant service to the education profession, educational institutions, and/or the community.  

5. Understanding of and commitment to the community college mission and philosophy or the substantive nature of the dissertation.  

Courtesy committee members will be nominated by the doctoral student and will be reviewed and evaluated by the Major Professor and referred to the Chair of the Department of Adult Education and Higher Education Leadership for review and initial approval. The Department Chair may confer with the CCLP faculty as needed. Following initial approval by the Department Chair, the Chair will recommend the courtesy faculty member to the Dean of the School of Education for review and approval. Finally, the courtesy faculty member will be forwarded along with the appropriate documentation to the Dean of the Graduate School for approval and appointment to the Committee.
Appendix 3

Graduate Program Review of the Department of Crop and Soil Science
Summary of Findings and Recommendations

The Department of Crop and Soil Science has dealt with formidable challenges through much of its 15-year history, including a long series of budget reductions. Nevertheless, the Department has managed to maintain a strong and productive program. The Department recruits good graduate students and supports them well. According to exit interviews conducted by the Graduate School and a survey conducted by the Department, most students are pleased with their graduate experience in the CSS Department. After completing their degrees, most students are employed in a field related to their studies. By all of these standards, the graduate program in the Department of Crop and Soil Science is successful.

From other perspectives, however, the graduate program in CSS has serious limitations. In fact, it is hard to identify any real “program” on the Departmental level. To a large degree, faculty conduct their own, largely independent mini-graduate programs within the infrastructure of the Department, especially within the Crops unit. The Department as a whole requires that students give a seminar, but other than this and requirements established by the Graduate School, it has no stated requirements, competencies or expectations either for incoming students or for successful graduates. Students choose to study in the CSS Department based largely on the reputation of faculty advisors. For the most part, the students’ individual graduate committees establish expectations for student performance. There appears to be very little coordination of, or indeed, even interest in, the graduate program on the departmental level. The 11-page Strategic Plan that is presented in the self-study report does not contain a single reference to graduate programs. The review team was told, “We’ve taken our [graduate education] system for granted over the years and don't keep the type of statistics you [are] interested in on an on-going basis.”

To the degree that graduate education is successful in CSS, it is because the highly dedicated and skilled faculty take their mentorship roles seriously. They deserve credit for this. According to a survey conducted by the Department in preparation for the program review, most students are pleased with the amount of attention they receive from their advisors and graduate committees. Although there does not appear to be much of a sense of community among graduate students at the departmental level, students who responded to a survey included in the self-study report said that one of the great strengths of their graduate school experience is the network of peers and faculty that they interact with. In our meetings with students, we learned that this is particularly true for students who are advised by faculty with large, well-established research programs, and that often this network involves peers and faculty in other departments more than in their own department. These inter-departmental connections are laudable, and a great strength in the Department. On the other hand, students with advisors who are less well connected may flounder.

So by one set of standards the graduate program in CSS is highly successful, and by another it is dysfunctional. This dichotomy raises important philosophical questions about the role and management of graduate programs in the rapidly changing, interdisciplinary arena of
environmental and biological sciences. Where should responsibility reside for the articulation and delivery of, and accountability for, excellent graduate programs? It is generally assumed that departments have this responsibility, but in the CSS Department it is clearly the domain of individual faculty, or at most, sub-groups of faculty or self-organized sub-disciplines within the department. Is it impossible, as CSS faculty maintained in a meeting with the Graduate Program Review Team, to articulate a set of common goals and expectations for graduate students in a highly diverse, interdisciplinary department? If so, is it disingenuous even to offer graduate degrees with departmental “labels”? If students and faculty are happy with a graduate program, does it matter, or should we take an “if it isn’t broken, why fix it?” approach, as endorsed by members of the CSS graduate faculty during a meeting with the Graduate Program Review Team?

The Review Team believes that as long as graduate programs formally reside within departments, departments must be accountable for these programs. Accountability includes, 1) A clear articulation of the “products” of the program; i.e., the skills and knowledge expected of all CSS graduates; 2) A recruitment program for students who are likely to succeed in the program; 3) A curriculum (including courses as well as advising and out-of-class learning opportunities) designed to help students achieve the desired skills and knowledge, 4) A mechanism for evaluating whether students achieve the desired skills and knowledge, and 5) A mechanism for evaluating the overall success of the program in achieving items 1-4. Although the graduate program in CSS does have many of these elements, with the exception of a set of four “core” courses in the Soils unit, they appear to be more accidental than deliberate.

From this perspective, the 2004 review committee offers the following recommendations:

**Student Recruitment and Selectivity:**

- Characterize a “great student” as a Department and develop a mechanism for evaluating the quality of applicants according to your own criteria (which may or may not include GPA, GRE scores, statement of interest, undergraduate institution, prior research experience etc.)
- Maintain consistent records for the total applicant pool, accepted students, and students who accept offers including numbers and data on quality measures. Analyze this information to self-evaluate success in recruitment and identify any trends in changing quality of the applicant pool and accepted students.
- For students who are accepted and decline the offer, determine the reason. Maintain records to identify whether there are consistent reasons why students are declining offers. Are students offered higher stipends elsewhere? Are facilities better? Are course offerings more diverse? Attempt to remedy any underlying problems.

**Diversity in the Student Population:**

- Continue strong support for diverse graduate cohorts
Financial Support of Students:

- As a Department, nominate and support increased number of CSS students for prestigious scholarships, including university and professional opportunities. Learn what it takes to make a strong/successful nomination.
- Continue support for students and pursue ways to increase departmental awards in both CS and SS.
- Make fellowships and scholarships for CSS students a high priority in CAS capital campaigns.

Curriculum:

- Work together as a faculty to define the skills and knowledge expected of all CSS graduates and for each subdiscipline within the Department. In conjunction with external constituencies, identify core competencies of students graduating from CSS. Develop methods to assess those competencies ACROSS THE DEPARTMENT. This can include accumulating data on GPA, passage rate of (any) required courses, success rate on comprehensive exams, success with integrated preliminary questions, quantitative and qualitative assessment of the seminar presentation etc.
- Review and update curriculum in light of the defined competencies or expected skills and knowledge. Ensure that students are offered the necessary learning opportunities through formal coursework, out-of-class experiences, seminars, lab rotations, attendance at professional conferences, or informal experiences both from within your department as well as without).
- Remove courses from the catalog that are no longer taught consistently or develop a plan to offer them regularly.
- Review the entire curriculum to identify ways to streamline offerings for a comprehensive undergraduate program in order to free faculty time to develop a coherent and dependable graduate curriculum in the department.
- Consider “remedial” courses required for students without appropriate background.
- Develop a single graduate handbook for both the Crops and Soils units, with links to the specific details for each program. These details should be presented in a common format demonstrating that the programs really are part of the same department.
- Set standards for “slash courses” and periodically review to ensure graduate level expectations and performance. (Note that the Graduate Council has established guidelines to differentiate undergraduate vs. graduate-level learning: [http://oregonstate.edu/dept/grad_school/Graduate_Council/outcomes.htm](http://oregonstate.edu/dept/grad_school/Graduate_Council/outcomes.htm)).
- Get serious about your graduate seminar. What are your objectives? What should students get out of the seminar? Where do students learn the presentation skills they are supposed to demonstrate in the seminar? Can they learn or demonstrate the skills through another venue, for example, by presenting a paper at a professional conference?
- Develop partnerships with other units to create opportunities for writing and speaking skills courses for graduate students.
Student Performance:
- Identify criteria for measuring student performance ACROSS THE DEPARTMENT and develop methods to consistently track performance. For example, track publications, presentations at professional conferences, successful competition for funding or scholarships, and length of time to complete degree.

Student Concerns:
- Develop and consistently deliver an orientation for incoming students that includes students from both units, regardless of whether one or ten students is entering or which term they matriculate. Consider making this an overnight activity that emphasizes community development.
- Find ways to facilitate development of cohesive cohorts beyond those created by lab/office mates. Orientation, a professional development seminar, and required courses can contribute, but also consider other strategies as well as more intention/attention to integration across departments.
- Review slash courses to ensure graduate level learning opportunities are available to students in their disciplinary field (not just from courses provided in other units).
- Take student participation in department governance more seriously. Consider it part of “professional development” to learn how to participate in meetings, make decisions, and be responsible to others. Mentor students to help them also understand that this is part of their learning experience. Let students participate on all committees (including P&T – they have to learn how this works), have representatives to faculty meetings, etc.

Professional Viability of Graduates:
- Continue providing professional opportunities for students.
- Engage an external advisory board in interactions with students through internships/mentorships, presentations from alumni or other constituents, etc.
- Consider development of a one-credit course on professionalism. The course could cover guidelines for good grant writing, seminar presentation tips, professional ethics, and exposure to the variety of career options available.

Faculty and Research Programs:
- Conduct an internal review to quantitatively evaluate the productivity and accomplishments of CSS faculty relative to similar departments at peer institutions. Share the results with the Graduate Council at the one-year follow-up report from this review.
- Consider diverting resources toward junior faculty to ensure that they develop vital, externally-funded programs that can attract and support good graduate students.
- Continue to encourage faculty to seek opportunities to increase visibility at the national and international levels, and aggressively promote faculty for awards.
- Review the distribution of the teaching load to make sure it is equitable.
- Consider developing strategies to help the citizens of Oregon better appreciate the contributions of your students and faculty to the welfare of the state.

The Scholarly Community:
- Develop compelling themes for seminar series that draw faculty and students from all components of the Department. Consider tasking a graduate student committee (with equal representation from Crops and Soils) to organize the seminar for one
term per year on themes of mutual interest, and provide the students with a small budget to invite outside speakers.

- Establish an expectation of attendance at departmental seminars.
- Use a fall orientation for graduate students (Crops and Soils combined!) as a vehicle to develop a sense of community among the students.

Introduction

On April 11, 2005, a Graduate Program Review Team (GPRT) visited the Department of Crop and Soil Science (CSS) to review their graduate program. Team members were:

- Barbara Bond, College of Forestry, OSU (chair)
- Denise Lach, Co-Director, CWESt, OSU
- Theresa Filtz, College of Pharmacy, OSU
- Randy Southard, Associate Dean, Division of Environmental Sciences, University of California, Davis (external reviewer).

Although GPRTs typically include a representative from an industry or other major employer of students who graduate from the program being reviewed, no representative from industry or other employer groups was assigned to our team. Consequently, this report does not include an employer’s assessment of program quality.

The Graduate Program Review occurred concurrently with a review by the Cooperative State Research, Education and Extension Service (CSREES), and Dr. Southard served on both teams. There were advantages to this concurrent scheduling. Our team benefited from discussions and insights of the CSREES team, and the CSS Department was spared having to host duplicate site visits. Also, it is possible that some aspects of the self-study materials were more detailed than they might have been otherwise due to the larger scope of the review.

However, the concurrent review also posed many problems for the GPRT. We highlight the problems here in the hope that future reviews may be better planned.

- Much of the information requested by the Graduate School for periodic program reviews was missing from the self-study document. It appeared that the process of preparing documents for the CSREES review was so overwhelming that the Department was not able to pay close attention to the requirements of the Graduate Program Review. [The preoccupation with the CSREES review is evidenced in the initial version of the self-study document that was distributed to the GPRT before the site review. In this document, names of the members of the CSREES Review Team are listed on p. 5; the GPRT was not mentioned. This omission was corrected in a final draft that was posted on a web site].
- Graduate Program Review teams generally visit sites for one full day. Our Team visited with members of the Department for the first day of the four-day CSREES meeting. Although the agenda was organized so that graduate programs were emphasized on the first day, and the CSREES team graciously deferred to the GPRT in some of the
discussions, there was less focus on graduate programs during the first day than in “typical” Graduate Program Reviews.

- The GPRT (with the exception of Dr. Southard) missed several discussions on later days of the CSREES visit that might have been useful, including discussions of faculty hired on less than full time appointments, presentations of ideas for curriculum development, meetings with small groups of faculty and exit interviews with faculty, students and administrators. In no case was the GPRT excluded from important discussions. On the contrary, the Department Head graciously extended invitations to the GPRT to all of the CSREES meetings and social events. Our problem was a matter of scheduling. Members of the GPRT were simply not able to attend these meetings.

- Only three graduate students out of a total of about 45 in the Department (all from the Crops side of the Department) showed up for a scheduled 1 hour meeting with the review team. The poor attendance may have been partly due to the location of the meeting – it was on the opposite end of campus from the buildings where the students normally work. It is also clear that strong encouragement to attend the meeting was not sent to students in advance. The three students who attended were thoughtful and articulate, but clearly they did not represent the whole student body adequately. Another meeting between the CSREES team and graduate students was arranged later in the week and the GPRT was invited, but only one member could attend. Although this meeting was well attended, the conversations were dominated by the CSREES team, the timeframe was short, and it was not possible to discuss most topics important to the GPRT.

- The external reviewer, Dr. Randy Southard, was apparently stretched beyond his capacity to serve as a member of both teams. After the site visit, Dr. Southard shared a few very helpful insights via e-mail with the other members of the GPRT, but he was not able to engage in a detailed review as most other external reviewers do. This combined with the lack of an employer representative limited our ability to provide discipline specific assessment.

Detailed Findings

History of the Program
The roots of the Department of Crop and Soil Science go back more than 125 years, although the disciplines were housed in separate departments for most of that time. The current department was formed in 1990 through a merger between the Crop and Soil Science Departments. In 1995, more than 20 extension faculty joined the Department, forming one of the largest academic departments on the OSU campus.

Except for a brief period of increased funding the late 1990’s, the CSS Department has faced serious financial and programmatic challenges for most of its 15-year existence as a combined unit. The merger of Crops and Soils was basically a “shotgun wedding” between groups of faculty with widely differing roles. As examples, Crops research is well supported by the state, and Soils faculty have much heavier teaching loads. As a result of the merger plus additions of the extension faculty and of two faculty from the terminated Entomology Department, the CSS Department is left with “people all over the board”, making it difficult to establish a departmental identity. In addition, there are “spatial challenges”. The Department is housed in four buildings on campus and at 17 locations statewide – it is difficult if not impossible to bring
all faculty together at one time. To deal with this large, dispersed group, the Department operates in a “unit” approach. Administrative functions and undergraduate programs are dealt with on a Departmental basis while graduate programs and many planning functions are separated into “Crops” and “Soils” units.

Results of the last Graduate Program Review

The Graduate Program of the CSS Department was last reviewed in 1994, and the review team offered 13 recommendations to improve the program. It appears the Department has made good progress with some of the recommendations and not with others. Due to a lack of information or insufficient time, the 2005 GPRT was not able to assess progress in some areas. Here is a summary of the 1994 recommendations in categories of curriculum/training and advising, with our findings in italics.

Curriculum and Training
1. Develop guidelines on degree requirements in each of the research areas. This has been better accomplished for Soils than for Crops.
2. Involve all faculty in the training of graduate students. Most on-campus faculty with research/teaching appointments are involved in graduate training. Few extension and off-campus faculty have direct or on-going involvement.
3. Reevaluate faculty teaching loads, appropriateness of 400/500 courses, and frequency of offering courses. Teaching loads appear to be distributed inequitably, although it is not clear whether this is a problem (see details later in the report). Slash courses, the frequency of course offerings, and the diversity of course offerings remain problematic.

Graduate Students and Advising
1. Provide a structured departmental orientation for new students. Faculty claim that this is being done but students disagree. The Soils unit is apparently offering orientations more consistently. Sessions have been planned the last three years in the Crops unit but were cancelled in two years due to low student numbers.
2. Develop a graduate student organization. There is no graduate student organization on the departmental level.
3. Provide for a student representative on faculty committees. The self-study report shows that many faculty committees include students. Students report that they have little involvement in committees. This is discussed in more detail later in the report.
4. Develop a mechanism to allow graduate students to have teaching opportunities. This is being done well in Soils as there are numerous opportunities for students to assist as lab instructors in basic soils classes. There are fewer on-going opportunities in Crops.

Graduate Admissions, Teaching and Advising

Student Recruitment and Selectivity:
The Department relies on faculty to recruit students, and does little in the way of recruitment on the Departmental level or even within the separate Crops and Soils units other than annual, general solicitations at professional meetings. As one faculty member said, “If you are creative,
you are a go-getter, then you will have students.” The primary recruitment method for both Soil and Crop Science units is through contact with a potential major advisor.

The Department has instituted a “pre-application” approval process. The Department assesses whether students will be accepted into the program before they actually submit an official application. Acceptance depends mostly on whether a faculty member has a project and/or funds to support a student. While this process may create extra work for faculty, it provides prospective graduate students an early read on the likelihood of their acceptance into the program and helps avoid unnecessary application fees for students who are denied admission when there is no good faculty match. The pre-application process is laudable, but it is difficult to assess the acceptance rate of students (one measure of selectivity) and the quality of the students who don’t accept offers from the Department.

A measure of success in recruitment is the proportion of “accepted” students who decide to enter the program or to reject the offer. On request, the GPRT was provided data for 1999-2000, 2002-2003 and 2003-2004 showing the number of students accepted, admitted, and admitted but choosing to go elsewhere. According to these data, for the Crops and Soils units, respectively, an average of 36% and 32% of students accepted to the program did not accept the offer during these years. These statistics may indicate that many students are accepted to the program but are not “picked up” by major professors (it is a policy of the Crops unit to accept students and then wait for professors to select them). On the other hand, a faculty member told us that it is “more challenging to recruit graduate students now. We have very attractive offers, but last year 1 of 3 we offered turned us down”. This statement seems in contradiction to a statement by the Department Head that the Department had no trouble attracting as many high quality students as they could support. It appears that the Department needs to pay closer attention to its recruitment process.

It appears from the information provided by the Department that there has been a declining number of students interested in CSS Department over the past five years. In 1999-2000, 330 potential students enquired about the program and were sent an information packet. In 2002-2003 the number dropped to 154, and in the following year to 88. According to the external member of the review team, this may be a general trend in soils and crops programs at both the undergraduate and graduate levels. However it is also possible that moving graduate information to a departmental web page confounds these numbers. With more information about the program available on-line, it is likely that fewer students will make general requests to the Department to be sent materials.

The quality of the incoming students is high, according to faculty. The GPRT has no reason to doubt this assessment, although it appears that the Department does not generate information that would allow us to make an independent assessment.

The faculty appear to believe that the minimal requirements for graduation are an attractive feature of the CSS Department and gives an advantage in recruiting. This may be a dangerous assumption – it is also possible that the low requirements simply attract students who avoid challenges.
Recommendations:

- Characterize a “great student” as a Department and develop a mechanism for evaluating the quality of applicants according to your own criteria (which may or may not include GPA, GRE scores, statement of interest, undergraduate institution, prior research experience etc.)
- Maintain consistent records for the total applicant pool, accepted students, and students who accept offers including numbers and data on quality measures. Analyze this information to self-evaluate success in recruitment and identify any trends in changing quality of the applicant pool and accepted students.
- For students who are accepted and decline the offer, determine the reason. Maintain records to identify whether there are consistent reasons why students are declining offers. Are students offered higher stipends elsewhere? Are facilities better? Are course offerings more diverse? Attempt to remedy any underlying problems.
- Develop recruitment materials for the graduate programs with specific information about the faculty and the research they do. These materials can take the form of brochures for use at conferences and meetings, and web pages for students who are cruising for graduate programs.

Diversity in the Student Population:
The GPRT commends the CSS Department on their diverse student body. There is a significant international cohort of students as well as a large number of students who are minority and/or women.

Recommendations:

- Continue strong support for diverse graduate cohorts

Financial Support of Students:
With the exception of the MS in Environmental Soil Science program, all graduate students receive some level of financial support. During 2003-04, for example, about 72% of students had “full” GRAs (tuition and .49 FTE), which is commendable. During exit surveys, more than 2/3 of graduating students reported that they were satisfied or very satisfied with the level of support they received from the department.

Resources for graduate support are provided through a variety of sources, including two IGERTs (NSF graduate training grants), Microbial Observatory, CSREES, NSF, European Community, foundations and grants from individual faculty members. The Soil Science unit has two merit GRA positions (.49 FTE for one year – faculty member provides funding after year one) and a limited number of TA positions. In discussions, the GPRT learned that there are also two or three scholarships available from the CAS, but it is not clear whether these scholarships are awarded to CSS students. Although the funding status appears to be very good, the level of graduate student support through scholarships and fellowships provided by the Department or
College is low considering the potential support from agricultural interests. Small supplemental scholarships awarded to meritorious students to supplement GRA support might enhance the appeal of the Department to highly qualified students.

The Department provided no information about the success of CSS students in obtaining scholarships outside the Department or College. The GPRT requested information from the Graduate School about the number of their scholarships and fellowships that have gone to CSS students. It appears that CSS students are encouraged to apply for university-wide and professional scholarships. In recent years, CSS grad students have had little success with the highly competitive Bayley and Yerek fellowships. Most CSS students who applied for those fellowships received ratings that place them in the low to middle range of the pool. This changed in 2004-05 when CSS students were more highly ranked, although due to lack of funds, they did not receive awards. CSS students have fared a bit better in the Oregon Sports Lottery Graduate Scholarship, receiving at least one scholarship from this source in the past three years. (It's important to note that 84% of funding available from the university is in the form of tuition remission so if most CSS students receive support from grants they are not eligible for many forms of university support.)

Recommendations:
- As a department, nominate and support an increased number of CSS students for prestigious scholarships, including university and professional opportunities. Learn what it takes to make a strong/successful nomination.
- Continue support for students and pursue ways to increase departmental awards in both CS and SS.
- Make fellowships and scholarships for CSS students a high priority in CAS capital campaigns.

Curriculum:
Separate graduate handbooks have been developed for the Crops and Soils units to describe curricula and requirements. Both are available on-line. The Crops handbook provides information about the credits required, which appear to be the same as requirements of the Graduate School. The GPRT was told that there is a seminar requirement in Crops but this is not in the Handbook. The Soils handbook is organized completely differently. It does not repeat the Graduate School’s credit hour requirements, but it does describe requirements for oral communication and teaching.

Currently there are no required courses in CSS except enrollment in a one-term seminar during which each student presents a paper. Students’ programs are devised by the student in consultation with his/her advisor, although there is some evidence that among the Master’s students that this does not happen on a timely basis. When asked, faculty were not able to describe either generally or specifically what a graduate from their program should know or be able to do (or what particular classes they should take). No common set of competencies has been articulated, although again when asked, faculty agreed that each student should be able to communicate orally and in writing. On the other hand, faculty noted that there were no courses or other training in the Department to help students attain these skills. The GPRT assumes that
students are also expected to be methodologically sophisticated and able to design/critique research projects, and that faculty would readily agree that a primary function of the thesis or dissertation is to develop these skills. However, it is surprising that there have never (apparently) been any discussions among the faculty to articulate exactly what they expect from students or how they will provide students with learning experiences to meet these expectations.

Faculty expressed resistance to developing a core curriculum or core set of competencies for all of CSS, claiming that everyone’s work is so different that it doesn’t make sense to have requirements. In the Crop Science unit, there are no competencies or course expectations other than the 1 credit departmental seminar. In the Soil Science unit, on the other hand, students are expected to master four “core” areas (soil biology, soil physics, soil chemistry, and soil morphology). Students are not required to take any courses in these areas, but their knowledge of these topics is assessed in preliminary and final exams. It is believed that most students end up taking the courses in order to pass the exams. Students in the Masters in Environmental Soil Science track (MS-ESS - about 1/3 of the students in Soil Science) are not required to take any professional development courses although the stated goal of the program is to have students ready for public or private careers in professional jobs.

Students reported that while they initially liked the flexibility of having no specifically required courses, ultimately they would have liked more direction and structure as they moved through their program. With responsibility for recruiting and funding students, helping set research topics, and serving as the student’s employer, the primary advisor (who is also a principal investigator) has a great deal of influence over a student’s education. Thus, graduate student experiences are highly variable depending on their advisors, and the GPRT infers that the criteria for completion of graduate degrees are highly variable depending on advisors and committees.

There are few “stand alone” graduate courses in CSS; most courses are taught as “slash courses” (i.e., 400/500 level courses). The quality of graduate education in these courses is variable, and we heard from students that expectations for the amount or type of work required and/or the topics covered in the graduate version of the course are only slightly different from the undergraduate version. They have taken many courses, for example, where the graduate component of the class was to write a longer paper than the one assigned to undergraduates. These students were very concerned about the quality of the classroom experience in slash courses, describing it as “not especially stimulating.” The department relies on other departments and colleges to provide graduate courses for their students (e.g., statistics, writing, plant physiology) although some faculty mentioned that these courses were hard to find. The outside reviewer noted that there are relatively few graduate level courses offered on a regular basis (especially 600 level courses). It is clear that faculty are working to fill gaps left by retirement and resignations, but the graduate curriculum may be losing its coherence.

All CSS students are required to attend a one-term seminar series during which they make a presentation, although there was a difference of opinion about this requirement. Most students claimed that they were only required to give their own seminar, not to attend a series of seminars. The student handbooks imply that students must attend a term-long series. According to faculty, the goal of the seminar is professional development and experience in public
speaking; however, students claimed that they receive little formal training in preparing and making scientific presentations, and say that they generally receive no feedback at all after their presentations. Hand-outs about professional development are distributed to students during the seminar and it is expected that major professors will assist with the seminar. We heard from both students and faculty that this is not always the case. Neither faculty nor students could articulate the effectiveness of this seminar in helping to professionalize students.

Some faculty reported that they knew that they should reexamine their curriculum and core competencies but claim a lack of time and resources for doing so. Some faculty from the Soils unit said they had initiated such discussions some time ago, although others seemed not to remember. Indeed, the foundation of the graduate program in Soils is much stronger than in Crops. Apparently there have never been such discussions within the Crops unit, much less for the Department as a whole. Faculty say they would like to see more direction and assistance from administration before they tackle the issue.

Last year as part of a course, a group of graduate students in Crop Science and other programs developed a plan for a graduate program in plant breeding. We commend the course instructors for this creative involvement of graduate students in curriculum planning. The plan is interesting, and if nothing else demonstrates a strong desire on the part of the students for more educational opportunities. The CSREES review team was excited at the prospect of an interdisciplinary plant breeding and genetics program and suggested that such a program might be unique in the nation. Because this plan would require new financial resources from multiple departments, it would require significant administrative support. We encourage administrators in CAS to team with their counterparts in other colleges to seriously consider support for a program like this.

Recommendations:

- **Work together as a faculty to define the skills and knowledge expected of all CSS graduates and for each subdiscipline within the Department.** In conjunction with external constituencies, identify core competencies of students graduating from CSS. Develop methods to assess those competencies ACROSS THE DEPARTMENT. This can include accumulating data on GPA, passage rate of (any) required courses, success rate on comprehensive exams, success with integrated preliminary questions, quantitative and qualitative assessment of the seminar presentation etc.
- **Review and update curriculum in light of the defined competencies or expected skills and knowledge.** Ensure that students are offered the necessary learning opportunities through formal coursework, out-of-class experiences, seminars, lab rotations, attendance at professional conferences, or informal experiences both from within your department as well as without.
- **Remove courses from the catalog that are no longer taught consistently or develop a plan to offer them regularly.**
- **Review the entire curriculum to identify ways to streamline offerings for a comprehensive undergraduate program in order to free faculty time to develop a coherent and dependable graduate curriculum in the department.**
• Consider “remedial” courses required for students without appropriate background.
• Develop a single graduate handbook for both the Crops and Soils units, with links to the specific details for each program. These details should be presented in a common format demonstrating that the programs really are part of the same department.
• Set standards for “slash courses” and periodically review to ensure graduate level expectations and performance. (Note that the Graduate Council has established guidelines to differentiate undergraduate vs. graduate-level learning: [http://oregonstate.edu/dept/grad_school/Graduate_Council/outcomes.htm](http://oregonstate.edu/dept/grad_school/Graduate_Council/outcomes.htm)).
• Get serious about your graduate seminar. What are your objectives? What should students get out of the seminar? Where do students learn the presentation skills they are supposed to demonstrate in the seminar? Can they learn or demonstrate the skills through another venue, for example, by presenting a paper at a professional conference?
• Develop partnerships with other units to create opportunities for writing and speaking skills courses for graduate students.

**Student Performance:**
It is not clear from the materials provided to the GPRT or from the interviews with faculty and students whether graduate student performance is tracked by the Department as a whole. Formation of program committees, research topic selection, and preliminary exams are all decentralized and dependent on the major advisor/project PI. The Department does not appear to collect information about graduate student performance beyond transcripts, so it is difficult for the GPRT to assess performance. According to the 2004 exit survey of graduate students, about ¾ of CSS students reported that they took about the length of time they expected to finish their degree.

For the Preliminary Exam in the Soils unit, Ph.D. candidates are asked to prepare a proposal that is completely unrelated to the students’ work. This is a great way to evaluate students’ problem solving skills. Also in the Soils unit, all PhD students have to take an exam that covers the major areas of soils, (biology, morphology, physics, etc). However, there appears to be no consistent, systematic method for evaluating students on their depth of understanding of the subject matter of their dissertation or other general knowledge during this exam. One Soils faculty member noted that this is “a big blank hole”. In Crops there do not appear to be any mechanisms for evaluating performance of current students other than observations by advisors. Annual reviews of students on assistantships are conducted by supervisors, but these reviews are seldom carefully reviewed at the Departmental level; no systematic review process is in place for students on scholarships or with other sources of funding.

**Recommendations:**
• Identify criteria for measuring student performance ACROSS THE DEPARTMENT and develop methods to consistently track performance. For example, track publications, presentations at professional conferences, successful competition for funding or scholarships, and length of time to complete degree.
**Student Concerns:**

Only three graduate students – two Ph.D. and one M.S. - met with the entire GPRT during the site review, and all three students were from the Crop Science unit. In a short follow-up meeting, 23 students met with the CSREES team and one of the GPRT members. Comments from both meetings are presented here, although there is emphasis on the first meeting because there was more time for a productive conversation.

Students perceive that Crop and Soil Science units are two separate entities; in fact, they often used the terms “Crops Department” or “Soils Department” to describe the units. They claim they have few contacts with students or faculty in the program in which they are not enrolled. The physical separation may lead to separate orientations. Students believe that there are effective ways to collaborate across the departments, although they claim there are no opportunities for this. Students at the first meeting said they would like to see social events, courses and seminars that are shared across the programs. However, a student at the second meeting said, “the administration has tried to make things happen – they send emails about pot lucks, etc. But students are very busy. They do not put out the effort to attend. This may be partly because when they do attend, there are no introductions to bring people together.” When students at the second meeting were asked to rate the level of camaraderie within their units (as separate units, not as a whole department) on a scale of 0 to 10 (with 10 being excellent), responses from Crops students ranged between 2 and 4. Soils students agreed on a rating of “less than 5 out of 10”. However, students also agreed that within individual lab groups the level of camaraderie is often very high.

Another concern raised by students is the unevenness of orientation/direction for graduate students – this is highly dependent on who the major advisor is and what project the student is working on. As one student described it, “each major professor seems to have gotten a different memo about what’s required.” Another Master’s student claimed that she hadn’t had direction regarding setting up a committee (well into her second year) and doesn’t feel that the graduate handbook is particularly clear about how to do this. Students were also concerned that the amount of work required for a GRA varies by major professor – they believe it depends on whether the student is perceived by the PI as a grad student or “employee” on the project. Students treated as “employees” are concerned that their graduate training takes a back seat to the needs of the project. Students also reported that not everyone receives a regular evaluation so they may not be clear about the progress that is expected and/or how well they are doing.

Students also have concerns about the curriculum. They reported that there were few course offerings, but the few available had considerable “overlapping material”. They described this as inefficient use of faculty and a waste of time for students. They would like teachers to coordinate and integrate course work to the extent possible. Another concern is that they see course prerequisites not being enforced, allowing students without the necessary background to take advanced courses. They believe this results in a general “dumbing down” of CSS courses. In combination with the slash courses dominating their programs, graduate students believe that much of their CSS course work does not and cannot meet their needs.
As discussed above, one student told us that she came to OSU because of the flexibility in designing her program but with some reflection she now believes that she should have had a few more required courses to get the breadth of knowledge in the field. Another echoed these concerns, believing that she will be extremely “well trained” in the research field she’s working in but not trained broadly enough to be comfortable teaching outside this specialized area.

Graduate students do serve on departmental governance committees, but report that committees rarely meet and/or they focus on items of little concern to graduate students. The graduate students we spoke with at both meetings did not realize the value of committee service to their professional development. When asked whether they had sufficient input into the decision-making of the Department, a student at the second meeting answered, “Yes, we work through our major profs.” Other students concurred. According to the CSS graduate survey, graduate students do not see a “well-established mechanism for regular graduate student involvement in department decisions affecting them.”

In a summary statement, students report that they have had generally outstanding experiences interacting with their major professors. This is echoed in the exit survey where students report satisfaction with the support provided by their major professor including finding funding, help in finding employments, and assistance on research and writing projects. Students also believe, however, that the CSS Department has lots of unrealized potential that could be met through integration across the programs. They report that the departments “hasn’t quite figured out how to take advantage” of great people and good lab conditions to facilitate work across programs, create a strong graduate curriculum, and increase connections between crop and soil science.

**Recommendations:**

- Develop and consistently deliver an orientation for incoming students that includes students from both units, regardless of whether one or ten students is entering or which term they matriculate. Consider making this an overnight activity that emphasizes community development.
- Find ways to facilitate development of cohesive cohorts beyond those created by lab/office mates. Orientation, professional development seminar, and required courses can contribute, but also consider other strategies as well as more intention/attention to integration across departments.
- Review slash courses to ensure graduate level learning opportunities are available to students in their disciplinary field (not just from courses provided in other units).
- Take student participation in department governance more seriously. Consider it part of “professional development” to learn how to participate in meetings, make decisions, and be responsible to others. Mentor students to help them also understand that this is part of their learning experience. Let students participate on all committees (including P&T – they have to learn how this works), have representatives to faculty meetings, etc.

**Professional Viability of Graduates:**

Faculty claim that placement of students is “exemplary” although it is difficult for the GPRT to assess this from the materials provided us. Of the 35 students in the MS-ESS track, 13-15 have
found work in natural resource agencies, 13-15 are working in private consulting practices or firms, and the remaining have taken academic positions. About 2/3 of the graduates reporting in the 2004 exit survey said that they were “very prepared” to begin their career or to move on to a higher degree program. However, the students we spoke with indicated that most students receive little mentoring or preparation to help them prepare for future careers.

Recommendations:

- Continue providing professional opportunities for students.
- Engage an external advisory board in interactions with students through internships/mentorships, presentations from alumni or other constituents, etc.
- Consider development of a one-credit course on professionalism. The course could cover guidelines for good grant writing, seminar presentation tips, professional ethics, and exposure to the variety of career options available.

Faculty and Research Programs

There were few discussions about faculty and research programs during the one day of the GPRT site visit, so our findings are mostly limited to information available in the self-study report.

CSS is a large department, including 27 professors, 15 associate professors, 15 assistant professors, 9 instructors and a large and fluctuating number of research associates and assistants. There are also a large number of professional faculty and courtesy/affiliate faculty. It is beyond the capacity of the GPRT to analyze all of the faculty vitae in detail, and no summaries were provided of research quality or productivity.

In the opinion of the external reviewer, the faculty are high quality and fairly competitive in attracting external support. The younger faculty are on good trajectories. Some of the senior faculty are well-known for their disciplinary contributions, and are recognized as fellows in their scientific societies. The Department notes that $2.1M in state and federal external funding was obtained in 2003-2004. This amounts to close to $40,000 per faculty member, or $100,000 per research FTE (AES). This is a respectable number, but a comparison with national averages for similar departments elsewhere would be useful. We do not know how the success in securing grants is distributed across units (Crops, Soils, Entomology, etc.). In the Accomplishments and Impacts statement of the self-study report (p 239), the Department notes the scholarly accomplishments of their faculty include “service on national review panels, invited presentations at national and international meetings, national and regional awards, and leadership of regional and national professional organizations.” All of this is admirable and suggests a healthy program. However, an enumeration by year of the number and nature of awards, peer-reviewed faculty publications, patent applications, number of presentations, review panels attended or chaired, and other quantitative data would allow for a better evaluation of faculty productivity.

Over the past decade, many faculty in CSS have either retired or resigned to take other positions. Many of these positions have not been refilled, leaving disciplinary gaps. In the past year alone, two faculty members left the CSS Department (one from the Crops unit and one from Soils unit)
to take prestigious positions with generous financial support at other institutions. Both of these faculty members maintained very productive research programs that supported a large number of graduate students. In the short term, at least, these losses are bound to have a negative impact on the graduate program. On the brighter side, the Department is now hiring ten new faculty positions. With time, these new faculty will likely invigorate the graduate program. At the same time, CSS, like many other OSU departments, will continue to lose top faculty unless salary and research support are brought up to the levels of peer institutions. There is little that CSS can do about this in the short run; the poor funding situation ultimately boils down to budget constraints and priorities in Salem. However, the Department provides huge benefits to the people of Oregon that are largely unrecognized, and should consider ways to get this message out to a broad audience.

Faculty who met with the GPRT during the site review appeared to represent a healthy balance of gender and ethnicity. According to data provided after the site visit, the academic CSS faculty eligible to direct masters or doctoral thesis students (55 total) is 14.5% female and 11% non-white, with the under-represented groups concentrated in the assistant professor category. This demographic distribution may reflect a determined and laudable effort in recent years to increase faculty diversity. According to our analysis, female and non-white faculty are major thesis advisors for a larger percentage of graduate students (30% and 17% respectively) than expected based on representation. Graduate student distribution may reflect a disproportionate success rate among women and ethnic minority faculty to obtain grant support necessary for graduate student mentorship.

Based on descriptions in the self-study report of faculty duties by FTE category (E&G, EX, AES), it appears that the majority of the teaching burden is shouldered by the relatively small number of female faculty. This may be a misperception by the GPRT based on the way that budgets are allocated to faculty. If this is the case, the teaching load of each faculty member should be more clearly presented in future program reviews. Has the department conducted a parity review in the past ten years?

Recommendations:

- Conduct an internal review to quantitatively evaluate the productivity and accomplishments of CSS faculty relative to similar departments at peer institutions. Share the results with the Graduate Council at the one-year follow-up report from this review.
- Consider diverting resources toward junior faculty to ensure that they develop vital, externally-funded programs that can attract and support good graduate students.
- Continue to encourage faculty to seek opportunities to increase visibility at the national and international levels, and aggressively promote faculty for awards.
- Review the distribution of the teaching load to make sure it is equitable.
- Consider developing strategies to help the citizens of Oregon better appreciate the contributions of your students and faculty to the welfare of the state.
The Scholarly Community

In an attempt to develop a scholarly community, CSS holds an annual fall one-half to full day meeting in conjunction with University Week and a 3-4 day spring meeting during exam week of winter term. It is seldom possible to bring more than half to two-thirds of the 100+ professorial and professional faculty together. Monthly meetings are typically held within each unit but off-campus faculty are seldom able to participate in these sessions. A multiday, off-campus retreat has typically been held every 5-6 years.

A cornerstone of the scholarly community for most healthy departments is a weekly departmental seminar. The CSS seminar does not seem to be popular among faculty or students. In the fall, the seminar is mostly devoted to faculty presentations as part of the promotion and tenure process (the Department typically has 6-8 faculty up for promotion and/or tenure in a given year) or to required student seminars. The winter term is devoted to plant breeding and genetics. The spring term is devoted to soils. External speakers appear to be rare. There appears to be little effort to develop themes that could attract a broad spectrum of the Department. Competing “community of interest” seminars in plant breeding and genetics, MCB, CGRB, hydrology and other areas vie for time that faculty are willing to commit to seminar participation on a weekly basis.

On the other hand many faculty have excellent collaborations and communications with faculty in other departments and, indeed, at other institutions. CSS faculty co-teach courses, co-author grant proposals and papers, and share laboratory space with faculty in other departments. Graduate students report that they regularly attend seminar series in other departments or programs on campus (such as molecular biology). These are wonderful connections.

Recommendations:

- Develop compelling themes for seminar series that draw faculty and students from all components of the Department. Consider tasking a graduate student committee (with equal representation from Crops and Soils) to organize the seminar for one term per year on themes of mutual interest, and provide the students with a small budget to invite outside speakers.
- Establish an expectation of attendance at departmental seminars.
- Use a fall orientation for graduate students (Crops and Soils combined!) as a vehicle to develop a sense of community among the students.

Facilities

The GPRT was not able to tour facilities due to a lack of time. We were told that plant growth facilities (greenhouses/growth chambers) are very old, limited, and expensive to replace. Office space for both students and faculty, laboratory facilities, and computer support appear to be adequate.

Administration

The Department of Crop and Soil Science is very large. As far as the review team can determine, department administrators, especially Department Head Russ Karow, are doing a fine
job. But their challenges are formidable. The GPRT wonders whether the Department is too large and varied to offer a cohesive, integrated graduate program.

The CSREES review team is offering a number of additional comments and suggestions concerning Administration.
Appendix 4

Chemical Engineering Graduate Program Review

Summary of Findings and Recommendations

RECOMMENDATIONS

1. Faculty - The department should consider establishing a goal of doubling the external research support per faculty, as this will translate into increased GRA support for graduate students.

2. Faculty - More emphasis should be placed on nominations of faculty for national and international awards that will provide visibility for the program and the graduate program.

3. Graduate students - To be consistent with nationally recognized programs, the Department would need to increase the size of its Ph.D. program by several fold. While this may be a very long-term goal, an intermediate goal should be to make a concerted effort to increase the size of the Ph.D. program beyond the proposed increase to 50% of the graduate student body. The Department should develop strategies for recruiting graduate students broadly across the country, with a focus on Ph.D. recruitment.

4. Graduate students - The involvement of graduate students on Departmental Committees and a graduate student representative at faculty meetings should be carefully considered. Graduate students can provide a unique perspective to committees and the experience provided to the graduate student makes these efforts worthwhile.

5. Courses - The structure of coursework in the Ph.D. program should be reassessed in view of the possible integration of Environmental Engineering faculty. Whether or not graduate students with interests in Environmental Engineering are served by the Chemical Engineering framework should be evaluated if/when integration is approved.

6. Courses - Although the Review Committee is strongly supportive of the suggested merger of Environmental Engineering faculty with Chemical Engineering, there are likely to be differences in cultures between the two fields. This came to the attention of the Review Committee through comments made by students regarding graduate courses in a Chemical Engineering subject taught by faculty external to the Department. The perception of the students was that such courses were taught at a lower level than they would be if taught by a chemical engineer. The Department must ensure that appropriate faculty teach courses at the graduate level.

7. Courses - The Department needs to expand its offering of 500 and 600 -level graduate courses to provide greater breath and depth for its students, and reduce dependence on 400/500 courses for graduate education.
8. Courses - The Department should consider starting a seminar series that brings to campus academic, government and industrial speakers. Although this does require resources, in the early years it may be possible to tap scientists, engineers, and practitioners in Oregon for a high proportion of the talks.

9. Courses - One way to build visibility of the Department and increase the course offerings is by offering short courses taught by visiting faculty. It might be possible, for example, to invite well-known faculty from other universities to visit OSU and give lectures over, say, a week. Students would take these courses for credit.

10. Resources - The funding model for GRAs and GTAs needs to be reviewed and reconsidered so that nationally competitive offers can be made. Most other major universities allow the inclusion of student fees into the budgets of grants.

11. Resources - Funding for GTAs needs to be considered from the standpoint of providing stipends that do not penalize students who might move from the GRA title to the GTA title.

12. Resources - Graduate student offices and desk space is very limited and common space is of low quality. These areas should be reviewed carefully and resources invested to bring graduate student offices to reasonable standards.

**Introduction**

On March 1, 2005 an all day review was conducted of the Chemical Engineering Graduate Program. The Graduate Council Review Committee consisted of:

- Lynda Ciuffetti (Chair), Graduate Council, College of Science
- Daniel Rockey, Graduate Council, College of Veterinary Medicine
- James Carrington, Director, Center of Gene Research and Biotechnology
- Robert Powell, External Reviewer, University of California Davis
- Gregory Herman, External Reviewer, Hewlett Packard, Corvallis

In addition, Sally Francis (Dean of the Graduate School) and Bruce Rettig (Associate Dean of the Graduate School) attended the review.

The last review of this program was held on April 12, 1985 and presented to the Graduate Council on May 23, 1985.

The committee began the day with a planning meeting at the Harrison House where members introduced themselves and collectively evaluated the strategy for the day. We then met with several groups in succession, including Ken Williamson (Chair, Department of Chemical Engineering), a group of Graduate Students (number varied from 5-9 over the hour), Ron Adams
(Dean of the College of Engineering), a group of Graduate Faculty in the department (11 faculty in attendance), and Rich Holdren (Vice Provost for Research). The committee also had a tour of the facilities and had an opportunity to meet with Dr. Williamson at the end of the day for an exit interview. The committee is confident that their experience, in conjunction with printed material delivered to the graduate school, was adequate to evaluate the program.

Dr. Williamson presented a self-study report to the graduate school two weeks prior to the site visit. This detailed self-study is a valuable document that contains candid assessments of strengths and weaknesses within the group. The graduate program in Chemical Engineering has undergone a rebirth in conjunction with the expansion of research efforts in the 1990’s. There has been significant change between then and now, much of which has direct impact on the breadth and depth of the program. First, energies toward interacting with the electronics industry and bioengineering/environmental remediation have been increased, while energies toward the pulp and paper industries have declined. In yr 2000 the Department doubled its enrollment with the addition of the Bioengineering Program from the College of Agricultural Sciences. This has apparently had mixed effects on the graduate program in the department. In the end, the move has added new and diverse faculty to the research group. The Program in Biomedical Engineering did not, however, materialize from this move. This was the apparent result of a lack of funding and a lack of interest in such a program.

The Department was challenged by administrative troubles in the late 1990’s. However, the past few years have seen significant evidence of positive development emerging in the Department. This progress is primarily in association with the positive leadership provided by Dr. Williamson. There have been several changes leading to an increased focus on research, which has led to increased opportunities for graduate student research. The self-study report suggests that changes in the Department within the past few years are such that any goals or results set or expected prior to yr 2000 are largely irrelevant.

The Department sees current and future research strengths within the areas of biomaterials, bioprocessing, microelectronics processing, micro/nanotechnology, and chemical processing. Specific needs for each of these areas is listed in the self-study report (pages 5-7). The faculty anticipate that the recent addition of bioengineering, the planned addition of environmental engineering, and the interaction with the ONAMI program will continue to add strength and opportunities for interaction that will have very positive effects on the graduate program.

**Detailed Findings**

The evaluation of the Graduate Program focused on comparative measures with other programs and its competitive position. These are broken down as: (1) Faculty; (2) Graduate students; (3) Graduate courses and program requirements; (4) Resources; (5) Other issues.

**Faculty**

Composition of the faculty include: 4 Professors (including the Chair), 8 Associate Professors, 2 Assistant Professors, and 5 Affiliated Chemical Engineering Faculty. All Chemical Engineering
faculty are graduate faculty. Department funds support 7 FTE with E&G funds, 6 FTE from targeted funds, and 1 faculty position through a funded chair.

There are various quantitative measures that might be used to “measure” the quality of the faculty, e.g., funding per faculty, or refereed publications per faculty. Other quality measures are more directly connected to external recognition and the future potential of the Department. These include faculty awards (both internal and external, although the external awards are more important for external recognition), impact of publications, and key grants.

Faculty have been educated at some of the top chemical engineering departments. In addition, the Department has embraced faculty from other disciplines, such as chemistry. This is a very positive trend and reflects the make-up of the best departments of chemical engineering. An additional very positive development is the potential integration of environmental engineering with chemical engineering. This promises to create a relatively unique Department. It is also a very logical development. Environmental engineers use many of the theoretical and practical tools that were pioneered by chemical engineers such as kinetics, flow in porous media, and suspension mechanics. The cross fertilization that will result from this combination has the opportunity to position the Department as a leader on topics such as sustainability and green engineering, areas of special interest to Oregon.

Faculty within the Department have received recognition at the College and University level through various awards. Some faculty have been recognized though prestigious grants, such as NSF CAREER Awards and Research Initiation Grants. A few have also received national awards not associated with grants. At the same time, it appears that there are many faculty for whom this recognition has not resulted in appointments at an appropriate level. In particular there are many faculty at the Associate Professor level for whom a promotion to Professor would appear warranted. It was suggested in one interview that this might be a result of poor and fractured leadership over the last decade. This should be assessed and if true, corrected. Further, as the Department matures, more emphasis should be placed on awards that will provide national visibility to the faculty. Many Departments have Award Committees that operate to this end.

In terms of other measures of faculty “quality”, the funding for extramural research per faculty is low. Assuming that increases in funding would imply commensurate increases in the number of graduate students and post-doctoral fellows supported, a doubling of the support per faculty appears to be a good long-term goal. The number of publications per faculty per year is about 2.5. This is slightly below average, however, it is always important to judge the quality of the work not necessarily the number of publications. This review did not focus on this issue, and it is sufficient to conclude that half the faculty are publishing at a rate that is consistent with top universities while four more are just slightly underperforming, based solely on the number of publications.
**Recommendations**

- The department should consider establishing a goal of doubling the external research support per faculty, as this will translate into increased GRA support for graduate students.

- More emphasis should be placed on nominations of faculty for national and international awards that will provide visibility for the program and the graduate program.

**Graduate Students**

Chemical Engineering is a small department that has historically provided excellent undergraduate education. The department is successfully increasing the visibility of its graduate program, and will continue to improve especially with the addition of biochemical engineering. The reputation of a graduate program is primarily based on its Ph.D. program. The Chemical Engineering Ph.D. program is by any measure quite small, less than one student per faculty. To be consistent with nationally recognized programs the Department would need to increase the size of its Ph.D. program by several fold. While this may be a very long-term goal, an intermediate goal should be to make a concerted effort to increase the size of the Ph.D. program beyond the proposed increase to 50% of the graduate student body. This is critical to the success of sponsored research programs. While the M.Sc. program need not be downplayed, the major effort must be on the Ph.D. There appears to be some opportunity for this as the quality of the graduate students has been increasing.

Although the graduate student community was viewed by students to be small, students felt the group had strong social bonds. The Review Committee was impressed by the general energy and cohesiveness put forth by the students in our discussion, although we only talked to a small subset of the total graduate student population. All things considered, the graduate students present at the meetings appeared to be satisfied with their choice to obtain their graduate degree in this Department at OSU.

While the overall presentation in the self-study was generally very good, at least one reviewer was overwhelmed with the 100+ pages of exit data for the past graduate students. This was an analysis of a total of 10 students. It seems these data perhaps were overworked and overanalyzed. Additionally, there was no real summary of what any of these data purportedly meant.

Dr. Williamson stated in a supplementary document that there would need to be an increase of 5 faculty to begin to approach the “top 25” goal of the College of Engineering. This would be a huge step in the right direction that would greatly assist the graduate program.
**Recommendations**

- To be consistent with nationally recognized programs, the Department would need to increase the size of its Ph.D. program by several fold.

- The Department should develop strategies for recruiting graduate students broadly across the country, with a focus on Ph.D. recruitment. Does the department focus on specific regions, schools, and/or research groups for recruitment?

- The involvement of graduate students on Departmental Committees and a graduate student representative at faculty meetings should be carefully considered. Graduate students can provide a unique perspective to committees and the experience provided to the graduate student makes these efforts worthwhile.

**GRADUATE COURSES AND PROGRAM REQUIREMENTS**

The Department has a curriculum that is consistent with national programs. There are some specific suggestions that result from the discussions with the faculty and students.

Although the Review Committee is strongly supportive of the merger of the environmental engineering with chemical engineering, there are likely to be differences in cultures between the two disciplines. This came to the attention of the Review Committee through comments made by students regarding graduate courses in a chemical engineering subject taught by environmental engineers. The perception of the students was that such courses were taught at a lower level than they would be if taught by a chemical engineer.

The Graduate Students discussed the format of preliminary exams and oral exams with the Review Committee. Apparently, students have not been comfortable with the quality and organization of this requirement in the past. However, the structure and quality of the preliminary exam format has been greatly improved by Dr. Gregory Rorrer (Graduate Advisor). The students had high praise for Dr. Rorrer’s efforts in the reorganization and quality of the preliminary exam format and students felt positive about the process as it is currently being directed.

**Recommendations**

- The structure of coursework in Ph.D. program should be reassessed in view of the possible integration of environmental engineering faculty. Whether or not graduate students with interests in environmental engineering are served by the chemical engineering framework should be evaluated if/when integration is approved.

- The Department should consider starting a seminar series that brings to campus academic, government and industrial speakers. Although this does require resources, in the early years it may be possible to tap scientists, engineers, and practitioners in Oregon for a high proportion of the talks.
• One way to build visibility of the Department and increase the course offerings is by offering short courses taught by visiting faculty. It might be possible, for example, to invite well-known faculty from other universities to visit OSU and give lectures over, say, a week. Students would take these courses for credit.

• The Department needs to expand its offering of 500 and 600-level graduate courses to provide greater breath and depth for its students, and reduce dependence on 400/500 courses for graduate education.

• The Department must ensure that appropriate faculty teach courses at the graduate level.

**RESOURCES**

Graduate student support, adequate and appropriate space and modern equipment are essential components of any graduate program. The first two are of considerable concern. Nationally competitive stipends for Ph.D. students generally range over $20,000 per year (12 months) plus tuition and benefits. Given that the cost of living in Corvallis is less than in many places where top tier universities are located, the GRA stipend offered by the Department, $17,388, is competitive. There are, however, two critical issues. First, students receiving GTAs do not receive that same stipend. Second, students are expected to pay (at least) part of their education and insurance costs themselves. These costs have increased dramatically in recent years. When these costs are subtracted from the stipend, the real level of support decreases dramatically and the offers are simply not competitive. Students have been told that these costs cannot be paid by federal grants. Whatever the case, the funding model for GRAs needs to be revised so that competitive offers can be made. All major universities build the fees into the budgets of grants and this model should be followed.

The issue of funding for GTAs needs to be considered from the standpoint of providing stipends that do not penalize students who might move from a GRA to a GTA. The explanations as to why this was not possible seemed confusing and somewhat arbitrary. If this is the case, it is within the purview of the Department to develop a consistent policy that is transparent to the students. If there are issues that cannot be resolved within the Department, then it is recommended that this issue be addressed at the appropriate level and policies be developed that are consistent with those of top tier universities.

The second issue is adequate and appropriate space. The current allocation of research space is about 700 – 800 ft² per faculty. This is reasonable; however, the most recent hires are developing dynamic research programs and there needs to be space to expand. If one researcher, for example, were to develop a funded program requiring 2,000 ft² of space – not an unreasonable assumption, this would reduce the available to under 500 ft² per faculty member, which starts to become marginal. Further, over the last 20 years, the nature of chemical engineering has changed and students increasingly are no longer having their desks in their laboratories due to health and safety concerns. This mandates an additional space requirement, which the Department is struggling to meet and will not be able to meet if the program expands modestly. Given that the
The department will need to hire at least 5 more faculty to approach the goal of “top 25” status, there will obviously be increased space issues in the future.

In the view of the Review Committee, the issue of modern laboratory equipment should be addressed through start-up packages, proposals, and donations. Typical start-up packages for new assistant professors, including equipment, student support and summer stipends can easily be as high as $500,000. The university should be able to provide these funds as well as matching funds for grants and to facilitate contacts with corporations that may lead to substantial equipment donations. This was a significant issue to many members of the committee.

**Recommendations**

- The funding model for GRAs and GTAs needs to be reviewed and reconsidered so that nationally competitive offers can be made. Most other major universities allow the inclusion of student fees into the budgets of grants.

- Funding for GTAs needs to be considered from the standpoint of providing salaries that do not penalize students who might move from the GRA title to the GTA title.

- Graduate student offices and desk space is very limited and common space is of low quality. These areas should be reviewed carefully and resources invested to bring graduate student offices to reasonable standards.

**Other Issues**

The Review Committee views very favorably the merger of Chemical and Environmental Engineering. The two disciplines are complementary. Such mergers are, however, not without issues. These generally result from developing a shared vision that extends from the broad issues down to details of recruitment strategies for graduate students. These issues can be worked out, but the Committee does have two concerns. First, it is absolutely clear that the current Chair is providing excellent and visionary leadership. Indeed, his efforts are remarkable: he is also Chair of Civil Engineering and retired. History seems to indicate that this is a Department in which the position of Chair seems to be particularly critical. The self-study document, as well as some discussions with individuals in the Department indicates that there has been some turmoil in this area in the recent past. Dr. Williamson has been a significant stabilizing force in this area, but as he is officially retired it is unclear how long he will remain in this position. As such, this will be a major issue for the Department. The Review Committee is divided on how to approach this. At least one member of the Committee supports the idea that an external search for a qualified individual will be important. However, others suggest that it may be particularly challenging to identify an appropriate individual for this position in an external search. Thus, a careful and open evaluation of qualified individuals from within the Department might be the best option. A long-term succession plan that perhaps includes a well-defined term of an existing faculty member as Chair might provide the continuity that is required. Regardless of the specific approach, at the
appropriate time it will be very important for the faculty within Chemical Engineering and the
Dean of the College to have open and frank discussions on establishing continuity of leadership
as they continue to the future.

Secondly, the committee was concerned that the two parts of the planned program, Chemical and
Environmental Engineering, will not be co-located. This makes it difficult to reap the benefits of
an interdisciplinary Department and also to build the common culture that comes from many
informal contacts that occur under casual circumstances. This makes the need for the new
building absolutely essential to the future success of the merged Department.

Lastly, one issue that was raised in various ways was the cost of the program relative to others in
the College of Engineering. It is generally true that Chemical Engineering Programs cost a bit
more to operate than other engineering programs. There are many reasons for this such as
Chemical Engineering typically has a smaller number of majors and these departments usually
have no service courses. In the case of OSU, the differences in funding are not out of line.
Further, there are two offsetting factors. While consideration of the undergraduate program was
not within the purview of the Review Committee, the facts that this is the only such program in
Oregon, and that (we were told) it attracts many of the best students at OSU, are compelling
reasons to keep funding at the current levels. Further, growing the graduate program is another
way to justify current or expanded funding levels. At other universities, teaching graduate
students is counted at a higher level than undergraduates. However, as University dollar support
for departments will likely not increase anytime soon, and as the fee situation probably is maxed
out in engineering (we hope), it is likely that additional monies for expansion of the graduate
program will need to occur through grants, gifts, and perhaps more nontraditional sources. We
stress that increasing external funding per faculty member is a key component of the
development of the Department, and that all strides to make opportunities for faculty
development in this area should be encouraged.