# ACADEMIC AFFAIRS PORTFOLIO AND OPERATIONS REVIEW

**SCHOOL/COLLEGE PHASE 1 TEMPLATE**

**Name of school/college: College of Science and Engineering**
**Date: June 17, 2016**

## Contents



## Introduction

Schools and colleges are asked to begin their work with careful review of the reports, data sets and guidelines provided by the university. This template is intended to inform the Workload and Operations Phase as explained in the Process Outline.

Schools and colleges are required to respond to the questions below and are free to provide additional comments and analysis where worthwhile. Please note that this template is only one of the deliverables from schools and colleges in Phase 1 and is not intended to present a complete picture on its own.

Responses to the questions in the latter part of this template should be informed by completed department/program templates. Schools/colleges are encouraged to distribute the department/program templates before beginning work on the questions below.

## Context for standard teaching load

First complete the Faculty Category Overview by articulating the categories of faculty employed in the school/college as well as the standard teaching load and other responsibilities for each faculty category.

Please provide the additional information needed to understand how the school or college defines or calculates instructional workload. Responses will vary by school/college but will typically address the questions below.

- What policies or practices impact faculty teaching load?
- What types of instruction are included in workload calculations? Is any credit-bearing instructional activity not counted?
- Are other instructional activities such as thesis supervision and project oversight included in the standard teaching load?

- Is your standard instructional workload based on the number of courses taught or the number of credit hours? If based on the number of courses, are there any circumstances in which the credit hours have bearing (e.g., 2-credit courses)?

## Response:

### Policies that Impact Faculty Teaching Load

The policies in effect in 2014-15 to determine faculty teaching load are summarized as follows:

1. Full-time non-tenure-track faculty members have a default teaching load of 35 work units. Full-time tenure-track faculty members (both untenured and tenured) have a default teaching load of 30 work units, with a 5-work-unit release for scholarship.
2. Teaching releases for department chairs and program directors vary from one department to another, based upon the size and complexity of the department, the number of graduate and certificate programs it supports, and the amount of time spent recruiting and advising transfer students.
    a. Diagnostic Ultrasound: 10 work units
    b. Physics: 15 work units
    c. Biology, Chemistry, Civil and Environmental Engineering, Electrical and Computer Engineering, Mathematics, Mechanical Engineering: 20 work units
    d. Computer Science and Software Engineering: 32 work units
3. Teaching releases for advising are assigned to each department, based upon the number of majors in the department. A department receives 1 work unit teaching release for every 12 majors. Department chairs allocate these teaching releases among the faculty who serve as academic advisors to students.
4. Newly hired assistant professors typically receive a 5-work-unit teaching release during their first year to give them more time to prepare for the classes they are assigned.
5. The director of the Math Lab receives a 5-work-unit teaching release for supervising the learning assistance center in the Lemieux Library and McGoldrick Learning Commons, as well as overseeing the Department of Mathematics' graders and serving as its textbook coordinator.
6. The technology coordinator for the Department of Mathematics receives a 5-work-unit teaching release. (Unlike most other departments in the College of Science and Engineering, the Department of Mathematics does not have a staff person providing technical or lab support. The technology coordinator is a faculty member.)

### Relationship between Instructional Workload, Courses Taught, and Credit Hours

The standard instructional workload in the College is based on neither the number of courses taught nor simply the number of credit hours. Instead, the workload takes into account the type of teaching (lecture versus laboratory), the level of the course (undergraduate versus graduate), and either the number of credit hours (in the case of lectures) or the time spent with the students (in the case of laboratories). The College uses "work units" to measure teaching effort.

- Teaching one section of an *N*-credit undergraduate lecture course is worth *N* work units
- Teaching one section of an *N*-credit graduate lecture course is worth *N*+1 work units
- Teaching one section of a laboratory course that meets for *N* hours per week counts as *N*-1 work units
- Teaching two sections of a laboratory course that meet concurrently for *N* hours per week counts as *N* work units

The abovementioned policy is imperfect. It assumes that all courses with a similar number of credits or contact hours are equally difficult to teach, regardless of the level of the course, the student learning objectives, or the number of students enrolled.

Another sore point has to do with the amount of work units faculty members receive for teaching laboratory sections. Although there is a 1:1 correspondence in the workload model between lecture hours per week and teaching work units, that is not the case with laboratories. Unless they are teaching two concurrent sections of a laboratory course, the number of work units a faculty member receives for teaching a lab is less than the number of contact hours per week. In addition, faculty members are involved in the pre- and post-lab planning and setup, which can be particularly intensive for each upper-division lab that requires the specific expertise of the faculty member.

Laboratory-based experiences are essential to attaining student learning outcomes in the STEM disciplines, and many of our departments teach a significant number of laboratory courses. For example, 85% of the courses taught by the Department of Chemistry include at least one weekly laboratory session with students, and 89% of the courses for biology majors include weekly laboratory sections. However, laboratory sections are poor generators of student credit hours, when you consider that the number of work units for a laboratory exceeds the number of credits, typically by a 2:1 ratio. As a consequence, a reasonable student/faculty ratio for a laboratory section (measured by student FTE divided by faculty FTE) is about half the student/faculty ratio of a lecture section. That means the student/faculty ratio of departments teaching a large number of laboratory sections (Biology, Chemistry, Civil and Environmental Engineering, Diagnostic Ultrasound, Electrical and Computer Engineering, Mechanical Engineering, and Physics) will be — and should be — lower than the student/faculty ratio of departments with very few laboratory sections (Computer Science and Software Engineering and Mathematics), even if all of the lecture sections have the same size.

Senior projects are handled differently.

- Engineering and computer science faculty members receive 5 work units for supervising a senior project team for an entire academic year. Environmental science faculty members receive 3 work units for supervising a senior project team for an entire academic year. The Project Center generates over $300,000 a year in corporate support in large part because the overall quality of the completed projects is very high. A high level of faculty engagement with the student teams has been key to establishing and maintaining high standards of quality for the teams.

- Chemistry faculty members receive 1 work unit for supervising 3-4 senior research projects.
- Mathematics faculty members receive 1 credit for supervising 1 senior undergraduate research project for one quarter. These credits are "banked" until the faculty member has enough credits for a course release. The department provides two teaching releases per year, one to each of the two faculty members with the most banked credits. Typically faculty accumulate about 30 credits before receiving a course release.

## Types of Instruction Not Included in Workload

Even though there are credit hours associated with internships, directed readings, and independent studies, faculty supervision of these activities does not count toward their workload.

Field trips in many of our courses greatly enhance the learning experiences of our students. Field trips may last a few hours or up to two days. For example, some faculty members devote up to four weekends per quarter in order to offer this important learning opportunity to students. They must obtain permits and arrange for lodging and food, and prepare the scientific activities conducted in the field. None of this extra time and effort is included in the workloads of the faculty members offering field trips.

Students in the diagnostic ultrasound program spend a great deal of time outside of scheduled lab times doing additional scanning. Faculty members spend time outside of regular lab hours mentoring and teaching the students, even during evenings and weekends. This extra time spent with students is not reflected in the workload model.

## Lack of Staff Increases Faculty Workload in the College of Science and Engineering

The College of Science and Engineering has neither a Career Center nor a Marketing Director. As a result, many activities that would be performed by staff members in other colleges or schools are performed by faculty members (particularly department chairs) in the College of Science and Engineering. The problem has become more acute as enrollments have increased and the College has developed new graduate and post-baccalaureate certificate programs.

## Recent Change to Instructional Workload Policy

In 2015-16, the College introduced a new requirement that tenured faculty members demonstrate scholarly productivity over the previous five calendar years in order to have a teaching load of 30 work units. Faculty who could not demonstrate scholarly productivity were assigned a teaching load of 35 work units. Of the 50 tenured faculty members in the College, 8 were assigned a teaching load of 35 work units in 2015-16.

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## Context for section sizes

Please review the Course Section Size Report and Summary Data Tables. These reports show, for sections at each level (1000, 2000, 300, 4000, and graduate), the distribution of course sections by size.

Informed by this review, explain your understanding of the drivers behind this distribution of sizes. Responses will vary by school/college but will typically address the questions below.

- What policies or practices govern section sizes?
- Are there externally imposed constraints from an accrediting or licensing agency? If so, explain.
- How does the physical inventory of rooms and their characteristics factor into section sizes? Are section sizes constrained by the size of a lab?
- What pedagogical considerations inform preferred course section sizes?

## Response:

### Policies and Practices Governing Section Sizes

A significant policy governing section sizes has been established by the Provost's Office, namely, that freshman UCOR class sections be limited to 19 students. This policy has the biggest effect on the Department of Mathematics. If the department were allowed to teach classes of up to 26 students, it could reduce the number of sections of UCOR 1200 taught from 16 to 12.

For the Biology, Chemistry, Environmental Science, and Physics programs that teach UCOR 1800 courses, the freshman Core section size policy has been interpreted to mean that laboratory sections must be limited to 19 students, but lecture sections can have 38 students (30 of 37 UCOR 1800 sections during 2014-15 included a double section-sized lecture). If smaller lecture sections are important for student learning in freshman Core classes, then the policy should be extended to the Core science courses. Additionally, this policy is unfair to the faculty teaching UCOR 1800 courses. A professor in another discipline satisfies 2/6ths or one-third of their teaching load by teaching two sections of a UCOR 1XXX class, lecturing 10 hours per week to 19 or fewer students. In contrast, a professor fulfills only 8/30$^{th}$ or slightly more than one-quarter of their teaching load by teaching two sections of a UCOR 1800 class with a combined lecture, lecturing 4 hours per week to up to 38 students and spending 6 hours per week in laboratories with up to 19 students. The faculty member still spends 10 hours per week in contact with students, interacts with and grades the work of twice as many students, but receives 20% less credit toward their teaching load.

In the College of Science and Engineering, we try to limit the size of lecture sections to 35 students. In recent years, budgetary pressures have forced us to go above this level on many occasions. Sometimes we have had lecture sections with more than 50 students. Raising this limit has negatively impacted the student experience because it is difficult to provide high-quality inquiry-based learning experiences to students when there are more than 35 students in a classroom. In addition, larger class sections have significantly increased the workload of faculty members, particularly with respect to classroom management, grading, office hours, and responding to

students' emails. Faculty morale has suffered because the faculty do not feel supported by the administration.

## Constraints on Laboratory Section Sizes

The number of students in laboratory sections is capped by the physical size of our laboratories. Lab spaces are designed to accommodate a maximum number of students due to knee spaces and access to equipment, gas lines, and air vents. The particular cap varies from one laboratory to another, as shown in Table 1.

Besides the physical size of laboratories, another important reason to limit the size of laboratory sections is safety. Here are two examples. We must limit to 8 the number of mechanical engineering students working with power tools in the machine shop under the supervision of a trained machinist. We limit the number of students in organic chemistry laboratories to 16 because that is the most people a teaching assistant should have to monitor. In some cases, the fire code establishes the maximum number of occupants in a lab.

***Table 1.*** *Maximum Section Size of Laboratories Used by the College of Science and Engineering.*

| Laboratory | Department | Maximum Section Size |
|---|---|---|
| ADMIN 224 | University computer classroom | 24 |
| BANN 101 | Biology | 18 |
| BANN 103 | Biology | 18 |
| BANN 158 | Biology | 16 |
| BANN 163 | Biology | 18 |
| BANN 164 | Biology | 18 |
| BANN 165 | Biology | 12 |
| BANN 204 | Electrical and Computer Engineering | 16 |
| BANN 205 | Electrical and Computer Engineering | 16 |
| BANN 304 | Physics | 12 |
| BANN 305 | Civil and Environmental Engineering | 19 |
| BANN 306 | Physics | 18 |
| BANN 307 | Physics | 18 |
| BANN 405 | Biology | 18 |
| BANN 406 | Biology | 18 |
| BANN 505 | Chemistry | 16 |
| BANN 507 | Chemistry | 18 |
| BANN 603 | Chemistry | 18 |
| BANN 604 | Chemistry | 24 |
| BANN 605 | Chemistry | 24 |
| CHDN 103 | Diagnostic Ultrasound | 12 |
| CHRN 208 | University computer classroom | 16 |
| ENGR 102 | Civil and Environmental Engr. | 17 |
| ENGR 103 | Civil and Environmental Engr. | 8 |
| ENGR 105 | Civil and Environmental Engr. | 20 |
| ENGR 107 | Mechanical Engineering | 8 |
| ENGR 110 | Mechanical Engineering | 24 |
| ENGR 308 | University computer classroom | 25 |
| ENGR 310 | Civil and Env. Engr. / Mech. Engr. | 27 |
| ENGR 403 | Mechanical Engineering | 12 |
| ENGR 404 | Civil and Env. Engr. / Mech. Engr. | 12 |
| ENGR 414 | Mechanical Engineering | 12 |
| ENGR 415 | Mechanical Engineering | 12 |
| PIGT 207 | University computer classroom | 34 |

## College Approach to Minimum Course Section Size

The College does not have a policy related to the minimum number of students required in a course section in order for it to be offered. We have relatively few physics and mathematics majors. In order to ensure that our physics and mathematics majors can graduate in four years, we must offer certain courses every year, even if the number of students in these course sections is small. Rather than enforce a minimum class size policy, the dean expects each department to teach a certain number of student FTE. The key metric is the ratio of student FTE to teaching work units, using the letter **Q** to represent the quotient:

$$Q = \textit{Student-FTE} \;/\; \textit{Teaching-Work-Units}$$

The dean uses historical data to determine a reasonable value of **Q** for each department. The values of **Q** shown in Table 2 are appropriate and reasonable based on the relative frequency of lab classes, the number of UCOR courses taught, and the number of different programs supported. Departments with similar instructional profiles should exhibit similar values of **Q**.

The dean uses historical data and admission projections to estimate the number of student FTE a department can be expected to generate in the next academic year. Student FTE is computed from student credit hours (SCH) as follows:

$$\textit{Student-FTE} = \textit{Undergraduate-SCH} \;/\; 45 + \textit{Graduate-SCH} \;/\; 27$$

Given the student FTE projection for a particular department and its desired value of **Q**, the dean determines the number of teaching work units to provide that department:

$$\textit{Budgeted-Teaching-Work-Units} = \textit{Predicted-Student-FTE} \;/\; Q$$

It is up to each department chair to determine which course sections should be taught to ensure the department meets its obligations to its majors as well as non-majors who need to take the department's courses. For example, the Department of Physics maintains its **Q** value, even while teaching relatively small class sections for its majors, by teaching very large sections of Mechanics and other courses serving non-majors.

***Table 2.*** *Reasonable Values of* ***Q*** *for Departments in College of Science and Engineering*

| **Department(s)** | **Q** |
|---|---|
| Mathematics | 0.50 |
| Computer Science and Software Engineering | 0.45 |
| Biology, Chemistry, Physics | 0.40 |
| Civil and Environmental Engineering,<br>Diagnostic Ultrasound,<br>Electrical and Computer Engineering,<br>Mechanical Engineering | 0.35 |

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If one or more of the course groupings provided in this report contains courses with different drivers for optimal section sizes such that a different method of grouping would be more informative, please identify the appropriate alternate way of categorizing course sections and provide this information to the Office of Institutional Research (IR). IR will then provide a revised report that will serve as the basis for your explanation to the questions immediately above. The section size categories (original or modified) will at a later stage be used as the basis for the Scenario Planning Model.

## Response:

In our view, there are six logical course categories:

- UCOR 1200 courses, where lecture sections are limited in size to 19 students
- UCOR 1800 courses, where laboratory sections are limited in size to 19 students
- UCOR 3800 courses, where course sections are limited in size to 28 students
- Lecture courses that hold some or all sections in computer classrooms
- All other lecture courses
- All other laboratory courses

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## Commentary and recommendations regarding current status

Making use of the information in the completed Faculty and Staff Workload Profiles, please describe your sense of the equity of faculty and staff workload distribution. Responses will vary, but will generally address questions along the lines below:

- Is faculty workload relatively evenly distributed across your departments and programs?
- Is there a difference between the adjusted teaching loads (standard load minus any releases and leaves, as calculated in the Faculty Workload Overview) and the actual teaching loads (as calculated in the Faculty Course Sections Report)? What circumstances led to this?
- Are there departments or programs that face particular challenges and how would you propose to resolve these?
- Is the current distribution of staff resources within the school/college optimal for accomplishing the work of the school/college? If not, how would you revise?

## Response:

### Comparing Faculty Workload across Departments and Programs

The student-faculty ratio is closely related to the quotient **Q** described earlier, which is the ratio between student FTE and teaching work units. The student-faculty ratio can vary a great deal from one department to another, based on the size of the department, the relative frequency of lab classes, the number of UCOR courses taught, and the number of different programs supported. It is reasonable to compare the student-faculty ratios of departments with similar instructional profiles

(such as Mechanical Engineering and Electrical and Computer Engineering). It is not reasonable to compare the student-faculty ratios of departments with strikingly different instructional profiles (such as Mathematics and Diagnostic Ultrasound).

***Table 3.*** *Student/Faculty Ratios in the College of Science and Engineering (2014-15)*

| **Department** | **Student FTE** | **Faculty FTE** | **Student / Faculty Ratio** |
|---|---|---|---|
| Mathematics | 254.4 | 17.71 | 14.36 |
| Physics | 95.9 | 7.77 | 12.35 |
| Computer Science and Software Engineering | 140.2 | 11.94 | 11.74 |
| College Average | | | 11.25 |
| Chemistry | 146.8 | 13.11 | 11.20 |
| Biology | 199.2 | 17.80 | 11.19 |
| Civil and Environmental Engineering | 98.2 | 10.60 | 9.26 |
| Electrical and Computer Engineering | 64.2 | 7.20 | 8.91 |
| Mechanical Engineering | 61.1 | 6.86 | 8.91 |
| Diagnostic Ultrasound | 32.8 | 3.77 | 8.71 |

Another way to consider faculty workload by department is to look at the ratio of majors to full-time faculty. Full-time faculty members perform many services on behalf of majors, including: academic advising, providing career guidance, writing letters of recommendation, helping students find appropriate internships, supporting students applying to summer research and graduate school programs, advising students looking for employment, and handling probations and hardship withdrawals. These responsibilities are heavier when the ratio of majors to full-time faculty members increases. Table 4 contains the ratios for fall 2015.

***Table 4.*** *Ratio of Majors to Full-time Faculty in the College of Science and Engineering (Fall 2015)*

| **Department** | **Majors** | **FT Faculty** | **Ratio of Majors to FT Faculty** |
|---|---|---|---|
| Electrical and Computer Engineering | 131 | 6 | 21.8 |
| Mechanical Engineering | 126 | 6 | 21.0 |
| Computer Science and Software Engineering | 228 | 11 | 20.7 |
| Diagnostic Ultrasound | 57 | 3 | 19.0 |
| Biology | 234 | 16 | 14.6 |
| Civil and Environmental Engineering | 130 | 9 | 14.4 |
| Chemistry | 84 | 12 | 7.0 |
| Physics | 31 | 7 | 4.4 |
| Mathematics | 57 | 17 | 3.4 |

That being said, faculty members also perform services on behalf of non-majors. In particular, faculty members in those departments that teach many services courses (particularly Chemistry, Physics, and Mathematics) are often called upon to write letters of recommendation for non-majors who have taken classes from them.

A third way to compare workloads across departments would be to look at the average lecture size. *Unfortunately, the Course Section Size Pivot Report does not provide reliable information about the average lecture size in those departments offering courses in which multiple lab sections share a common lecture. When multiple lab sections share a common lecture, the data table shows multiple lecture sections, causing the report generator to understate the average lecture section size.*

## Adjusted Teaching Loads versus Actual Teaching Loads

For the most part, the adjusted teaching loads shown in the "Faculty – Workload Profile" spreadsheet correlate well with the actual teaching loads shown in the "Faculty Course Sections" spreadsheet. A notable exception has to do with engineering senior design projects. All of the student credit hours for a department's senior projects are assigned to the department's senior project coordinator rather than being distributed among the faculty members responsible for supervising the projects.

## Distribution of Staff Resources

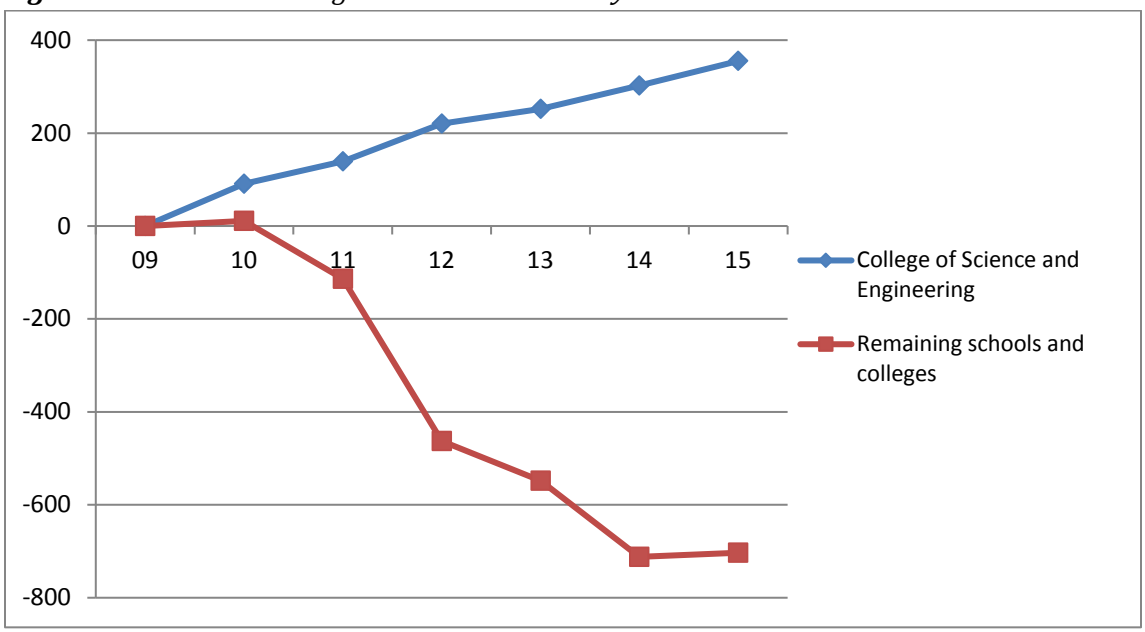
The current distribution of staff among departments in the College of Science and Engineering is reasonably equitable, although the College as a whole is understaffed. Understaffing is particularly acute in the engineering and computer science departments, where enrollments have risen the most in the past six years and where all of the new graduate and certificate programs have been developed.

The College could utilize senior administrative assistants more efficiently if it could reduce staffing during the summer. There is not enough work in the summer to keep all of the senior administrative assistants in the departments fully occupied. In the past year, when administrative assistant positions have become vacant, the College has changed the position descriptions to make the positions full time during the academic year and half time during the summer. This change of position description results the position being reclassified from 1.0 FTE to 0.88 FTE. As more positions become vacant over time, the College plans to continue reclassifying these positions, using the dollars freed up to address pressing college-wide needs, such as adding a staff person to handle administrative work related to scheduling and facilities.

## Challenges Facing the College of Science and Engineering: Two Graphs Tell the Tale

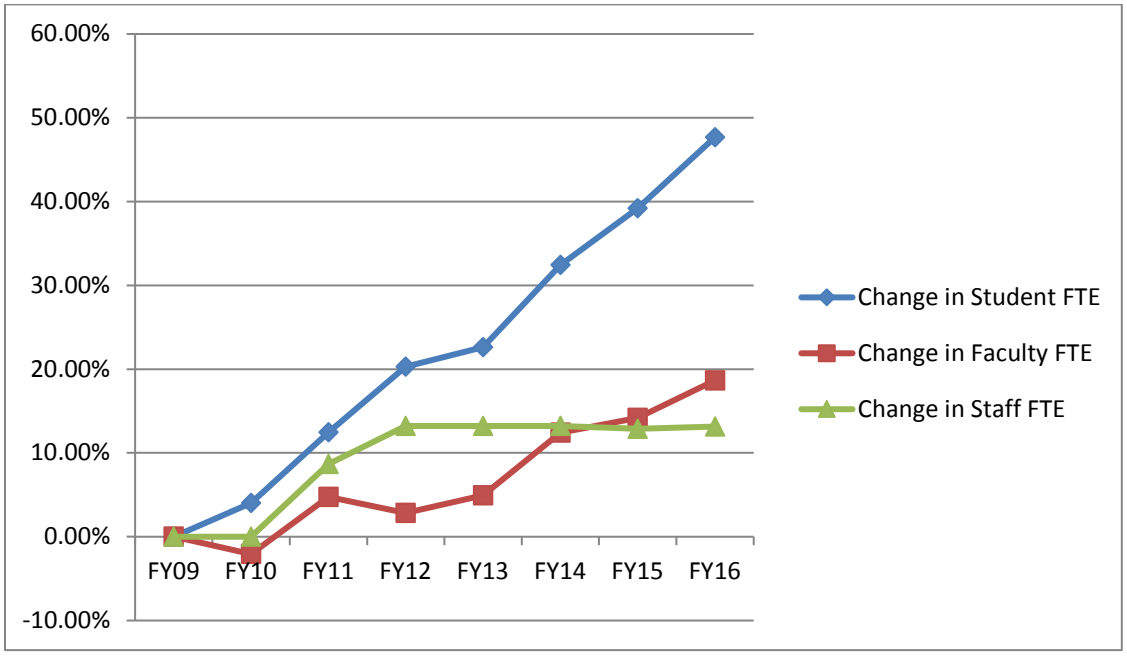
Between fall 2009 and fall 2015 the number of students enrolled as undergraduate majors and graduate students in the College of Science and Engineering increased by 355, while the total number of students enrolled in the other schools and colleges at Seattle University declined by 703 (Figure 1).

***Figure 1.*** *Enrollment Changes at Seattle University between Fall 2009 and Fall 2015*




Within the College of Science and Engineering, the increase between FY09 and FY15 in credit hours generated was even larger than the increase in the number of science and engineering majors and graduate students, due in part to the revision of the Core curriculum. Between FY09 and FY15, the College of Science and Engineering increased its teaching production, measured in student FTE, by 48%. During the same time period, faculty FTE increased by only 19%, and staff FTE increased by only 13% (see Figure 2).

***Figure 2.*** *Changes in Enrollment and Staffing in the College of Science and Engineering*



Because the College of Science and Engineering has not been allocated additional faculty FTE commensurate with the growth in student credit hours generated, the average section size has increased, and more students are finding themselves in lectures with 36 or more students. Extra-large lecture sections detract from our goal of moving toward active learning in all of our classes. Table 5 provides a list of the course sections of 36 or more students taught in 2015-16. Just over 20% of all undergraduate student credit hours generated from lecture classes were from lectures with 36 or more students.

*Table 5. Undergraduate Lecture Sections with 36 or More Students Taught in 2015-16*

| Quarter | Course Section | Course Title | Enrollment |
|---|---|---|---|
| Fall 2015 | BIOL 1610-01 | Biology I: Molecular and Cellular Biology | 49 |
| Fall 2015 | CEEGR 3020 | Global Engineering Economics | 39 |
| Fall 2015 | CHEM 1200-01 | Chemistry of Life | 43 |
| Fall 2015 | CHEM 1200-02 | Chemistry of Life | 42 |
| Fall 2015 | CHEM 1500-01 | General Chemistry I | 38 |
| Fall 2015 | CHEM 1500-02 | General Chemistry I | 36 |
| Fall 2015 | CHEM 1500-05 | General Chemistry I | 40 |
| Fall 2015 | CHEM 2500-01 | Organic Chemistry: Structure and Reactivity | 40 |
| Fall 2015 | CHEM 2500-02 | Organic Chemistry: Structure and Reactivity | 40 |
| Fall 2015 | CHEM 4500-01 | Biochemistry: Protein and Lipid Structure and Function | 46 |
| Fall 2015 | CPSC 2600 | Foundations of Computer Science | 38 |
| Fall 2015 | ECEGR 1200 | Digital Operations and Computation | 36 |
| Fall 2015 | ECEGR 3110 | Electrical Circuits II | 48 |
| Fall 2015 | MEGR 3210 | Thermodynamics | 38 |
| Fall 2015 | MEGR 4870 | Engineering Design I | 38 |
| Fall 2015 | PHYS 1050-01,-02 | Mechanics | 45 |
| Fall 2015 | PHYS 1050-05,-06 | Mechanics | 46 |
| Fall 2015 | PHYS 1230-01,-02 | Waves and Optics | 44 |
| Fall 2015 | PHYS 1230-03,-04 | Waves and Optics | 40 |
| Winter 2016 | BIOL 1610-03 | Biology I: Molecular and Cellular Biology | 36 |
| Winter 2016 | CEEGR 3020 | Global Engineering Economics | 39 |
| Winter 2016 | CEEGR 3310 | Fluid Mechanics | 41 |
| Winter 2016 | CHEM 1500-01 | General Chemistry I | 49 |
| Winter 2016 | CHEM 1500-02 | General Chemistry I | 49 |
| Winter 2016 | CHEM 2500-01 | Organic Chemistry: Structure and Reactivity | 48 |
| Winter 2016 | CPSC 2500 | Computer Organization | 36 |
| Winter 2016 | CPSC 2600 | Foundations of Computer Science | 42 |
| Winter 2016 | CPSC 3200 | Object-Oriented Development | 39 |
| Winter 2016 | MATH 2330 | Multivariable Calculus | 36 |
| Winter 2016 | MEGR 4880 | Engineering Design II | 38 |
| Winter 2016 | PHYS 1060-03,-04 | Waves, Sound, Electricity, and Magnetism | 43 |
| Winter 2016 | PHYS 1210-01,-02 | Mechanics | 37 |
| Winter 2016 | PHYS 1210-03,-04 | Mechanics | 37 |
| Spring 2016 | BIOL 1630-01 | Biology III: Physiology and Development | 48 |
| Spring 2016 | CHEM 2510 | Organic Chemistry: Functional Group Interconversions | 44 |
| Spring 2016 | CPSC 3500 | Computing Systems | 40 |
| Spring 2016 | ECEGR 2220-01,-02 | Microprocessor Design | 41 |
| Spring 2016 | MEGR 2810-01,-02 | Engineering Methods | 38 |
| Spring 2016 | MEGR 3040-01,-02,-03 | Data Acquisition and Instrumentation | 38 |
| Spring 2016 | MEGR 4890 | Engineering Design III | 38 |
| Spring 2016 | PHYS 1070-01,-02 | Thermodynamics, Optics, and Modern Physics | 61 |
| Spring 2016 | PHYS 1220-01,-02 | Electricity and Magnetism | 37 |
| Spring 2016 | PHYS 1220-03,-04 | Electricity and Magnetism | 38 |

Responding to Goal Three of Seattle University's strategic plan, faculty members in the College have worked hard to develop new graduate programs. However, the College's budget has not increased fast enough to support these new programs as well as maintain existing programs that are experiencing rapid enrollment growth. As a result, the College currently has two master's programs approved by the Board of Trustees — the M.S. in Systems Engineering and the M.S. in Mechanical Engineering — without a base budget. Funding for the M.S. in Systems Engineering was diverted to support extraordinarily fast enrollment growth in computer science, and the College's request for FY17 funding for the M.S. in Mechanical Engineering was deferred until October 2016.

In short:

1. Since 2009 there has been a strong shift of students toward STEM majors and classes offered by the College of Science and Engineering.
2. There has not been an equivalent shift in faculty and staff resources to the College.
3. The workload of the faculty and staff in the College has increased significantly over the past seven years. The student-faculty ratio has increased by 22%.
4. Increasingly often we have had to raise the size of course sections, undermining our efforts to create high-quality learning experience built on active learning pedagogies. Students recruited here with a promise of small classes have expressed their dissatisfaction.
5. The College currently has two new master's programs in engineering without base budgets.
6. Due to inadequate budgetary increases, faculty and staff do not feel supported by the senior administration. Morale has dropped.

## Dependence on Lecturers Reduces Overall Quality of Teaching

According to the College budget, 93% of faculty FTE are in full-time tenure-track or non-tenure-track "lines." However, this figure is misleadingly high because it doesn't reflect the dollars transferred from the Provost's Office enabling the College to hire temporary faculty members, or lecturers, to cover needed course sections. In addition, the College always hires many part-time or full-time lecturers to replace tenured faculty members who are on sabbatical or are provided funded course releases (such as the President of the Academic Assembly).

There are other reasons why the percentage of courses taught by temporary faculty members is higher than you might think after a cursory examination of faculty FTE in the College's budget. First, nearly all tenured and tenure-track faculty members receive a course release to provide them with more time for research and scholarship. Second, department chairs and program directors are typically tenured faculty, and they carry a lower teaching load because of their administrative duties. Third, academic advising is performed by full-time faculty members, who receive a reduction in their teaching load based on the number of students they advise.

An analysis of courses taught by tenured/tenure-track faculty, instructors, and lecturers reveals that our College is too dependent upon lecturers. In 2014-15 just over one-quarter (26%) of the courses were taught by temporary faculty members; i.e., full-time and part-time lecturers (see Table 6).

*Table 6. Percentage of Courses Taught by Various Categories of Faculty in 2014-15.*

| | Faculty with Budget Lines | | Temporary Faculty | |
|---|---|---|---|---|
| **Unit** | **Tenured / Tenure-track Faculty** | **Instructors** | **Full-time Lecturers** | **Part-time Lecturers** |
| Biology | 51% | 18% | 12% | 19% |
| Chemistry | 78% | 10% | 10% | 3% |
| Civil and Environmental Engineering | 32% | 34% | 14% | 20% |
| Computer Science and Software Engineering | 42% | 42% | 0% | 16% |
| Diagnostic Ultrasound | 0% | 75% | 0% | 25% |
| Electrical and Computer Engineering | 73% | 0% | 0% | 27% |
| Mathematics | 56% | 20% | 11% | 13% |
| Mechanical Engineering | 53% | 0% | 38% | 9% |
| Physics | 62% | 16% | 0% | 22% |
| **College** | **53%** | **22%** | **10%** | **16%** |

Our department chairs have found it increasingly difficult to hire high-quality temporary faculty members. The process of recruiting, interviewing, and hiring temporary faculty members has become an ever-larger part of the duties of most department chairs in our college.

In most cases, temporary faculty members are poorer teachers than full-time faculty occupying tenure-track or instructor lines. Dependence upon too many temporary faculty members is a problem because it lowers the overall quality of the learning experience we are providing our students.

Here is evidence of the difference in teaching quality between the typical full-time and the typical temporary faculty member. The Department of Mathematics teaches more course sections with temporary faculty members than any other department in the College. The department has analyzed the SPOT scores of every course taught in 2014-15, and it discovered that with respect to ***all four*** of the most critical questions (course well organized, used time effectively, attitude and teaching encouraged learning, and instructor effectiveness) the average SPOT score received by temporary faculty members was in the ***bottom 10%*** of the SPOT scores received by the department's full-time faculty members. The Department of Electrical and Computer Engineering did a similar study, analyzing the SPOT scores of every course taught in fall quarter 2015 and winter quarter 2016. Over the same set of four questions, the average SPOT score received by temporary faculty members was in the ***bottom 15%*** of the SPOT scores received by the department's full-time faculty members.

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Schools and colleges have a number of needs and responsibilities beyond the core academic functions of teaching, research and creative work, and scholarship. Examples include academic and career advising, marketing and student recruitment, technology management, and development/fundraising. The resources for such functions are in located within the school/college, centrally located, or managed through a blend of these.

- What observations and recommendations do you have regarding your ability—and the support you receive—in meeting all such needs and responsibilities?

## Response:

### Overhead Associated with Supporting Multiple Programs

A significant amount of faculty and staff time is associated with developing, maintaining, and operating multiple programs. This work is only partially recognized by the administrative work units allocated to the departments, particularly because accreditation-related reporting requirements continue to increase. In particular, the Department of Computer Science and Software Engineering now operates four undergraduate, two masters, and three certificate programs. The CSSE faculty have not been compensated for developing new programs, either in terms of stipends or course releases.

### Lack of Marketing and Recruiting Staff Support

Due to the absence of dedicated marketing and recruiting staff in the College of Science and Engineering, these tasks have been assigned to faculty members who have not been trained to perform these functions. A great deal of recruiting and admissions work for graduate programs happens during the summer, even though graduate program directors are not compensated for working over the summer to meet with prospective students, respond to inquiries, and make admissions decisions.

### Department Chairs' Summer Stipends Not Commensurate with Responsibilities

Between June 16 and September 15, a department chair has many responsibilities, including:

- interviewing and hiring temporary faculty members, both full-time and part-time
- assigning faculty members to courses and finalizing schedule of classes
- meeting with prospective students and parents
- advising newly admitted students
- evaluating the transcripts of transfer students
- advising current students and processing petitions for exceptions to academic policies
- helping students get into closed classes
- assigning students to senior design teams (engineering and computer science)
- writing letters of recommendation for current and former students
- leading department planning for curriculum updates
- working on annual program assessment report
- working on ABET-related assessment materials (engineering)
- working with clinical coordinator to identify clinical sites (diagnostic ultrasound)
- assisting faculty members preparing promotion and tenure dossiers
- supervising the department's administrative assistant and laboratory manager

- working with the laboratory manager to organize equipment in laboratories
- completing annual evaluations of departmental staff
- developing marketing materials and communication plans
- assisting with development efforts (i.e., "friend-raising" and fundraising)
- responding to requests from other members of the campus community
- responding to communications from the public

Department chairs receive only token compensation for their summer efforts. Depending upon their academic year salary, the summer stipends department chairs receive for their labors represent between 4 and 10 days' pay. It is unjust to expect department chairs to be responsible for so much without adequate compensation. To fairly compensate department chairs for their summer responsibilities, the stipend for each chair should be raised substantially.

### Extensive Service Commitments

Faculty in the College of Science and Engineering are involved in a significant number of service activities to their home departments, the College, Seattle University, their professions, the local community, and the global community. About 60% of the tenure-track faculty serve on at least one College or University committee, and service on the vast majority of these committees does not come with an associated teaching release. Every year, many faculty members in engineering, computer science, and environmental science spend time during the summer finalizing project scopes and forming teams for senior capstone design courses, even though they are not compensated for this work.

### Understaffed Dean's Office

As noted in the previous response, faculty and staff workload has increased substantially over the past six years because course enrollments have grown about two-and-a-half times as fast as the growth in faculty FTE and about four times as fast as the growth in staff FTE. In addition, the Campaign for Seattle University has begun. As the campaign ramps up, the dean is spending an increasing percentage of his time engaging with current and potential donors and supporting fundraising activities related to the Center for Science and Innovation. Meanwhile, the number of deans in the College has not increased: a full-time dean and two associate deans totaling 1.5 FTE. The College is missing out on important outreach and external grant opportunities because the dean and associate deans already have too much on their plates. In particular, supervision of the Project Center reverted to one of the associate deans when the Project Center Director position was eliminated during the FY10 budget cut. Because of the significant enrollment growth in engineering and computer science over the past six years, she now spends 40-50% of her time supervising the Project Center. Department chairs and faculty members, already feeling overloaded by the large growth in enrollment, are being asked to take on additional duties in support of the comprehensive campaign: meeting with prospective donors, conducting laboratory tours, and helping produce campaign materials.

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Please provide an overview of the role of student workers in the school/college, responding to the questions below:

- What types of work do your student workers do? E.g., graders, administrative support, research support, etc. (This supplements the student worker information in the Staff Workload Profile.)
- What logic or strategy determines which departments/programs receive student support? Is this periodically adjusted? (The Budgeted Resource Overview contains student wages by department.)
- To what extent do students replace staff support?
- Are your student wages/FTE more than you need, appropriate to your needs, or insufficient?

## Response:

### Types of Work Performed by Student Workers

Our student workers grade homework, act as assistants in laboratories and the machine shop, tutor other students, act as learning assistants, manage Web pages, and perform clerical tasks to support our administrative assistants.

### Where Students Replace Staff Support

We have hired a student worker to maintain the College's Web page, a task that would go to a staff person if we had more staff.

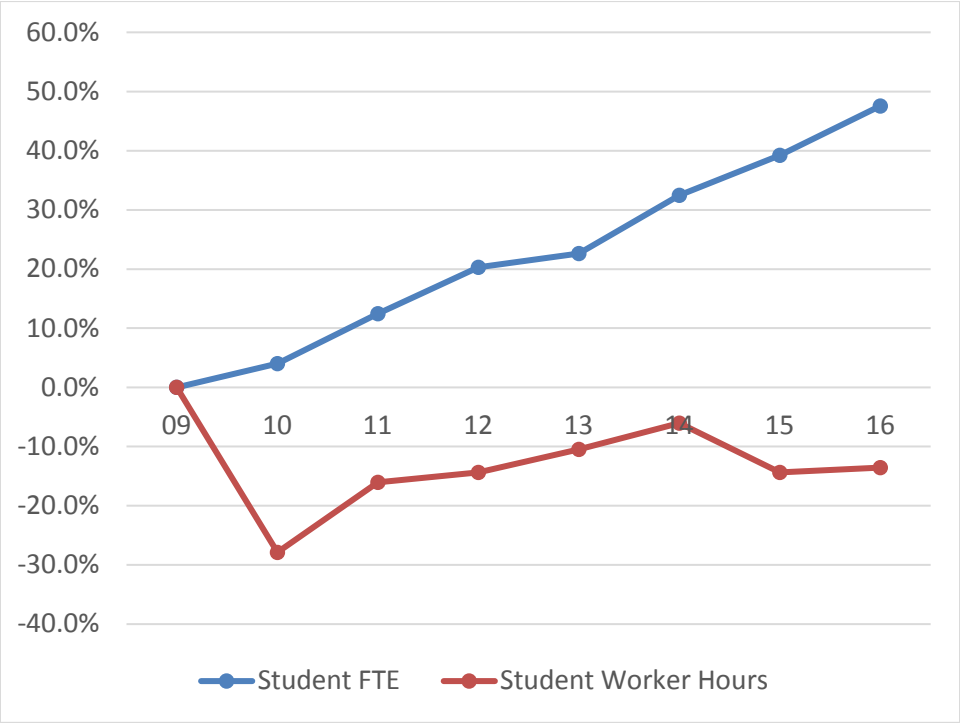
### How Student Workers Are Allocated

The primary determinant of each department's student worker budget is the number of student credit hours it generates. The Department of Mathematics receives a special allocation of student worker dollars in order to run the Math Lab in the Lemieux Library and McGoldrick Learning Commons. The departments with the largest student worker budgets are Mathematics, Biology, and Chemistry.

### Inadequate Budget for Student Workers

The student wages budget for the College of Science and Engineering is inadequate. The budget cut implemented in FY2010 forced us to trim the number of hours worked by students by 28%. Although the student worker budget has increased since then, the number of hours worked by student workers is still 14% below the FY2009 level, as even enrollments have increased 48% during the same time period (see Figure 3).

***Figure 3.*** *Changes in Student FTE Taught and Hours Worked by Students since FY2009*

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Non-salary funding:

- The majority of the Portfolio and Operations Review is about people: faculty, staff, and students. What, if anything, is important to add regarding non-salary funding?

## Response:

### Instructional Supply Budget Does Not Reflect Laboratory Fees Collected

In the past, the College's instructional supply budget was roughly equal to the fees collected for its lab classes. For example, in FY2009 the College's instructional supply budget was $255,773, or 91% of the $280,620 received in lab fees. There is no longer a close connection between the two amounts. In FY2015 the College's instructional supply budget was $333,228, only 59% of the $566,646 collected in lab fees. Student fees should be related to the actual expenses of the lab courses charging those fees, and fees collected should go back to the units responsible for teaching the courses.

### No Budget to Keep Diagnostic Ultrasound Laboratory Up-to-date

A recent accreditation visit to the Department of Diagnostic Ultrasound revealed that the equipment in the department's laboratories is obsolete and in need of replacement. The most cost-

effective way for the department to address this deficiency is to lease ultrasound equipment for its laboratory. The cost of leasing ultrasound equipment would be about $90,000 per year. The college does not have funds in its base budget to cover such an expense.

### No Field Laboratory

The environmental science program needs a field laboratory that would enable faculty to teach courses in the outdoor environment. Without such a facility it is hard to compete for students with other regional programs.

### Faculty Development Funds Do Not Reflect Increased Costs

The annual allocation of faculty development funds is too low and does not reflect the significant increase in conference registration fees over the past few years. The allocation should be increased from $750 per faculty member per year to at least $1,000 per faculty member per year.

### Standard Computers Are Not Powerful Enough for Many Faculty

Many of our faculty members have found that the standard desktop and laptop computers provided by Information Services are not powerful enough to support their teaching and research activities.

### Inadequate Laboratory and Project Center Space

The College does not have enough laboratory space for teaching, faculty research, and student club activities. In addition, there is not enough space to accommodate all of the senior project teams in engineering, computer science, and environmental science. We expect these problems will disappear after the completion of the Center for Science and Innovation, consisting of a new science building and a renovated Bannan building.

### No Study Space for Over 250 Majors in Three Programs

The undergraduate students majoring in civil engineering, environmental science, and mechanical engineering have no study space. This lack of space negatively affects their ability to work together on homework and makes it more difficult to develop a sense of community among students in these majors. We expect this problem will be resolved after the completion of the Center for Science and Innovation.

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## Opportunities for change

What else would you like to share regarding opportunities for change?

- If you had additional resources, what would you adjust operationally to improve? What would be the impact? At this time, we are not interested in academic program changes (refer to Phase 2 in the Process Outline for more about the academic program portfolio review), so focus your response on the other aspects of school/college operations.
- If you had fewer resources, what would you adjust operationally and what would be the impact? Again, in this phase, we are not interested in academic program changes.
- Are there ways that with your current level of resources, you could improve quality, effectiveness, or equity within your school/college?

## Response:

### Opportunities Associated with Additional Resources

If we had additional resources, our highest priorities would be:

- ***Creating 11 new tenure-track lines and three new instructor lines over the next three fiscal years.*** It is important to realize that tenured and tenure-track faculty currently teach only 53% of the classes taught in the College of Science and Engineering, even though they represent 73% of the College's budgeted faculty (see Table 6 on page 14). (The reasons for this difference are given on page 13.) Over the next three years, our annual production of student credit hours is expected to grow by 15%, or another 170 student FTE. Additional full-time positions (11 tenure-track and three non-tenure-track) are essential so that the College can maintain the current student-faculty ratio, maintain the percentage of budgeted faculty that are on the tenure track, and ensure that at least half of the courses will be taught by tenured or tenure-track faculty members (see Table 7). **To be clear: these positions are needed <u>not</u> to make things better, but to keep a <u>bad</u> situation from getting <u>worse</u>.**

*Table 7. Budgeted Faculty Positions (Current and Proposed).*

| | | Budgeted Faculty | | | | |
|---|---|---|---|---|---|---|
| **Year** | **Student FTE** | **TT Faculty** | **FT NTT Faculty** | **Part-time Faculty** | **Total Faculty FTE** | **Student / Faculty Ratio** |
| FY16 | 1,160 | 71 (72.5%) | 20 (20.4%) | 7 (7.1%) | 98 | 11.8 |
| FY19 | 1,330 | 82 (72.6%) | 23 (20.3%) | 8 (7.1%) | 113 | 11.8 |

- ***Hiring a scheduling and facilities coordinator.*** This full-time staff person would serve as scheduling coordinator and also provide facilities-related support to the College as the design of the Center for Science and Innovation commences.
- ***Hiring a Director of Recruitment and Outreach.*** This full-time staff person would oversee the College's efforts to recruit students, communicate with the public, coordinate outreach activities, and oversee seminar series that would bring speakers to campus.

- ***Hiring an Internship Coordinator.*** This full-time staff person would establish connections with local companies and institutions offering summer or academic year internships to undergraduate students majoring in science or mathematics. This staff person would also be responsible for making internship opportunities known to students, helping students apply for internships, and monitoring the value of students' internship experiences.
- ***Hiring another technician to support the engineering programs.*** This full-time staff person would support the demand by researchers throughout the College for custom-made parts for experimental instruments and would also support the maintenance of equipment used in the engineering labs.
- ***Providing faculty and staff with more support through student workers.*** Enrollments have risen substantially without a corresponding increase in student worker hours, leading to a much heavier workload of grading being placed on the shoulders of faculty members. The lack of an adequate student worker budget has prevented the College from providing clerical support to administrative assistants trying to cope with more students. An increase in the student worker budget equivalent to 2,500 hours of wages would enable departments to provide clerical support to administrative assistants, laboratory assistant support to technical staff and faculty members, grading support to faculty teaching large sections, and peer tutoring.

## Impact of Reduced Resources

A cut in resources to the College of Science and Engineering would be highly detrimental to our programs, given the substantial enrollment increases the College has experienced over the past six years (see Figures 1 and 2 on page 11).

## Reallocation of Resources

Over the past half dozen years, the College of Science and Engineering has reallocated resources in numerous ways in order to make more efficient use of them. Here are five examples of what the College has already done:

1. The College has reduced its administrative overhead by 26%. In FY09 administrative assignments in the Dean's Office and the departments totaled 9.07 FTE, representing 8.5% of the total faculty and staff FTE of 108.12. In FY15 administrative assignments in the Dean's Office and the departments totaled 7.84 FTE, representing 6.2% of the College's total FTE of 126.52. With fewer teaching releases for administration, more courses are being taught by the same number of faculty.
2. The College has reduced expenses by lowering the FTE of administrative assistant positions in departments from 1.0 FTE to 0.88 FTE when these positions became vacant. To date, the positions in Biology, Chemistry, and Mathematics have been affected. We have not forced any administrative assistants to lower their FTE; instead, we have only made this change when someone retires or resigns. It would be more equitable to the departments if we changed the remainder of the positions to 0.88 FTE, but we have not chosen to impose this FTE change on current staff members.
3. When chemistry professor Sue Jackels retired in 2015, the tenure-track line was moved from the Department of Chemistry to the Department of Computer Science and Software

Engineering as a response to the rapid increase in the number of graduate students and undergraduate majors in computer science.

4. Responding to the rapid growth in the Department of Computer Science and Software Engineering and the need to provide that department with adequate teaching resources, the College suspended the implementation of the M.S. in Systems Engineering and transferred the budget associated with that program to the Department of Computer Science and Software Engineering, providing that department with much-needed funds for another assistant professor and another full-time instructor. However, a negative result of the diversion of funds is that the College missed the opportunity to tap into a new student market, develop stronger relationships with local industry, and create a unique systems engineering program in the Puget Sound region.
5. Beginning in 2015-16, tenured faculty who could not demonstrate sufficient scholarly productivity over the previous five years lost their teaching release for scholarship. Of the 50 tenured faculty members, 8 are in this category in 2015-16. As a result, the College needed to fill 8 fewer sections with part-time faculty, saving 1.14 FTE of part-time faculty salary from its FY16 budget.

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## Other

Please share any other information, concerns, or opportunities valuable to this process.

**Response:** None.

## Attachments to the school/college report

Attach any school/college policies relevant to this process, e.g., definitions of research activity, service expectations, or course release policy. Please list the documents below.

## Response:

**Promotion and Tenure Guidelines** – This document articulates our college's expectations with regard to teaching, scholarship, and service.

**Application for Teaching Release for Research and Scholarship** – Completing this document is one of two ways that tenured faculty could apply for a teaching release for 2016-17. The documents asks the faculty member to list accomplishments over the past five years as well as work in progress and expected results in 2016.

**Essay Application for Teaching Release for Research and Scholarship** – Completing this document is one of two ways that tenured faculty could apply for a teaching release for 2016-17. The document asks the faculty member to write a 2-to-5 page scholarship statement that demonstrates he or she is an active scholar.

# Promotion and Tenure Guidelines

College of Science and Engineering

Seattle University

*Revised June 4, 2014*
*Approved by the Tenured and Tenure-track Faculty, June 11, 2014*
*Approved by the Office of the Provost, June 18, 2014*

## Table of Contents

# 1 Teaching Expectations for Promotion and Tenure

Among the many responsibilities of faculty members in the College of Science and Engineering, the responsibilities related to teaching are paramount. Faculty members are called to demonstrate excellence in the many aspects of teaching, as elaborated in the *Seattle University Faculty Handbook* and the *Seattle University Rank and Tenure File Preparation Guidelines*. It is the responsibility of faculty members seeking promotion and/or tenure to demonstrate how they meet or exceed the high standards Seattle University has established for its career faculty in the areas of teaching and student learning.

# 2 Procedures for Peer Evaluations of Teaching

This section provides some guidelines and procedures to assist both candidates and faculty peer reviewers with the process and practice of peer evaluations of teaching in the College of Science and Engineering.

## 2.1 Timing of Peer Evaluations of Teaching

The Rank and Tenure Committee of the University "encourages annual reviews of all tenure-track faculty and requires that application for tenure or promotion include at least three peer evaluations from the past two years." The College Personnel Committee requires that tenure-track faculty members arrange, with the support of their chairperson or dean, at least two peer evaluations of their teaching before their mid-probationary review.

## 2.2 Process for the Review

Peer reviews that are to become part of the candidate's record must be authorized by the department chair. (Peer reviews of chairs will be authorized by the Dean.) If the candidate is being considered for tenure and/or promotion, the candidate and chair will need to schedule at least three peer reviews in the two years prior to the review for tenure and/or promotion. If possible, different types of courses should be reviewed, and different reviewers should be chosen, in order that the candidate's peer reviews are complementary to each other. For example, one review might be of a lower-division general service course, and another a course for majors of the department. According to the University's guidelines, the faculty peer reviewer should normally be a tenured faculty member with rank equal to or higher than the rank for which the candidate is applying. However, at times it may be appropriate for the reviewer to be a faculty member of lower rank. Usually the reviewer is a member of the candidate's own department. While this is entirely appropriate, at times it may be helpful to have peer reviews done by faculty members from other departments within the College or University, or even by a faculty member from a similar department in another university. When the peer reviewer is from outside the department, the department chair should meet with the reviewer beforehand to ensure that the reviewer has a good grasp of the context of the course.

Candidates are strongly encouraged to use this peer review of teaching process as part of their interim review, and at any other time at their discretion, in support of teaching enhancement. Peer reviewers are asked to keep in mind the importance of peer reviews for formative as well as summative purposes.

Quality peer reviews are influential in reaching decisions about the promotion and tenure of colleagues. The reviewer's careful analysis will be invaluable in helping their colleague become an even better teacher and will provide needed guidance to their department, College and University in developing recommendations regarding the candidate's tenure and/or promotion. However, while input from this peer review process is an important element in the overall review process, any resulting decision on tenure and/or promotion will be based only in part on the information provided. Other faculty colleagues will review other courses, students will provide input through the student perception of teaching forms, and various departmental, College, and University committees and academic administrators will examine all the information including that submitted by the candidate, in reaching their recommendations.

The following procedures should be followed to ensure a helpful peer review.

1. Peer reviews should be based on at least two class session visits for lecture courses; at least two laboratory session visits for laboratory courses, and a mix of at least three class and laboratory visits for courses that have both lecture and laboratory components.

2. The faculty reviewer should meet with the instructor (the candidate) before the visit to learn about the instructor's goals and intentions for the class sessions, and the course overall. Examples of the types of discussions that may take place at this meeting are: What are the students expected to learn at these sessions? What skills or insights does the instructor hope the students will develop? What approaches does the instructor intend to use to help the students accomplish these tasks? Why are these approaches being used? Is there anything the instructor would like the reviewer to watch for? Has something puzzling come up in the student evaluations? Is a new approach to teaching being used? These are just examples of topics for discussion. Other topics might be more appropriate for the particular instructor and course under review.

3. The instructor should provide the reviewer with copies of the following materials, as well as other supporting documentation relevant to the classroom activities for the session being reviewed:
    - Statement putting the course in context (see section 4)
    - Course objectives
    - Course syllabus and text
    - Lecture notes, laboratory manual, or other materials normally provided to the students for the session (including the list of readings, discussion questions, lab description, and guidelines)
    - Examples of graded student work (problem sets, term papers, lab reports, etc.)
    - Examples of mid-term exams and quizzes (final exam from previous time instructor taught the course, if applicable)
    - Examples of other course materials that aid student learning, such as those handed out during class or posted on the course's web site throughout the term
    - Information about grading patterns

4. The reviewer should look over these materials and the assigned readings for the sessions in question before the visits. The reviewer should read the next section describing the proper

peer review format and develop a check sheet for use during the classroom visits to help keep in mind the focus and emphasis of the review. The reviewer should try to be constructive in conducting the review and providing analysis. While these reviews are required, the reviewer is being invited into someone else's classroom, and the instructor deserves the same consideration and respect for what they are trying to do in their classroom that the reviewer would expect to receive in their own classroom.

5. There should be a meeting between the instructor and the peer reviewer subsequent to the visits to allow for informal discussions about the reviewer's observations and any questions that may have arisen.

6. The faculty reviewer should prepare the peer review according to the format described in the next section.

7. The instructor should be given an opportunity to comment on a draft of the peer review and is invited to respond with respect to accuracy, completeness and fairness. If there have been misunderstandings, clarifications can be made at this point.

8. Department chairs will monitor peer reviews and help faculty improve their quality. Reviewers may be asked to rewrite peer reviews that do not adequately address all relevant issues described in the peer review format.

9. The instructor, the faculty reviewer, and the department chair should sign the final version of the peer review. Each should keep a copy for their records. The signature of the department chair on the peer review indicates that it has been accepted as part of the candidate's record.

## 2.3 Peer Review Format

*Using departmental stationery, please use the following format to write your peer review. Your own words should replace the italicized words.*

**Faculty Member Reviewed:** *(Name, rank, department)*

**Peer Reviewer:** *(Name, rank, department, expectations/knowledge/experience relative to the course and the instructor being evaluated)*

**Class Reviewed:** *(Course title and number; course enrollment)*

**Dates of Classroom Visitations:** *(Dates of visitations and attendance at each visitation)*

**List of Materials Discussed and Evaluated in Review:**

**I. Context** *(What does the instructor hope to accomplish and by means of what structure and content – e.g., readings, assignments, class format, level of difficulty? What does the department expect from this course, as a major and/or a core offering? Who takes this course? Is it required? One paragraph should suffice.)*

**II. Description** *(How was the evaluation conducted – e.g., made classroom observations; looked at writing samples? What was observed, such as teaching content and techniques; interaction with students; grading standards and procedures? One paragraph should suffice.)*

**III. Review** *(The main part of the review may be broken into sections and organized as you see fit. The types of issues to be included in your narrative might be: How fitting and effective did the course structure appear to be? Were assignments and exams designed well? Did the instructor employ useful standards of evaluation? Did the instructor demonstrate concern for students and for improvement of their performance? What is your assessment of the scholarly quality of lectures and materials presented? What are areas of strength? What are the areas that the instructor might want to address, and what suggestions do you have in regard to them? Does the instructor encourage cooperation among the students? Does the instructor give students prompt feedback on their performance? Does the instructor inform students about minimum time requirements to accomplish a given task or assignment? Is the pattern of grades appropriate? Does the instructor set high enough standards for the students? Does the instructor respect the diverse talents and ways of learning that these students bring to the classroom?)*

**Summary:**

**Signature of Reviewer:**

**Signature of Faculty Member*:**

**Signature of Chair**:**

* *Signature simply indicates that the faculty member has read the peer review. The faculty member may attach comments to the peer review if desired.*

** *Signature indicates that the chair approves the peer review for the record.*

# 3 Scholarly Expectations for Promotion and Tenure

## 3.1 Preamble

Much of the vibrancy of colleges and universities comes from the scholarly work done by faculty and students. This active scholarship is vital to the intellectual health of primarily undergraduate colleges, such as the College of Science and Engineering at Seattle University, where faculty mentor students participating in undergraduate research and senior design projects. The investigative nature of active scholarship benefits teaching and learning in and out of the classroom. When the results of research are communicated through publications and talks, there is feedback to the researcher that helps him or her to grow as a scholar. This scholarship additionally contributes to the vigor of discipline-based and broader communities outside one's institution, and may also lead to external professional service.

In the College of Science and Engineering at Seattle University, tenured and tenure-track faculty members are expected to be dedicated to the pursuit of excellence in scholarly activity. Faculty can demonstrate to students the benefits and rewards of their own scholarship by teaching up-to-date principles, methods, and applications, and by incorporating examples of their own problem-solving methods in lectures and laboratories. By serving as role models and collaborators, faculty members can guide students toward lifetimes as critical thinkers. Faculty members can also demonstrate to students the importance of good communication skills that allow scholars to share with others the results of their creative work within and across disciplines.

For the College of Science and Engineering, appropriate forms of scholarship include the scholarship of discovery, pedagogy, synthesis, and application, with some variation by scholarly area in the relative importance assigned to each of these broad categories. Whatever the category of scholarship, by making public the outcomes of their creative work, including their contributions to new knowledge, methods and applications, faculty can enhance the learning environment within Seattle University and beyond. In addition, the commitment of Seattle University to support an enhanced scholarly atmosphere will attract and retain faculty who are committed to a life of scholarly pursuit as well as quality teaching.

## 3.2 Standards

The purpose of this document is to clarify the standards and expectations of the College of Science and Engineering with respect to the scholarship of its tenure-track faculty members.

1. Scholarship refers to creative intellectual work whose significance is validated by external peers and which is communicated outside the University. For the College of Science and Engineering, appropriate forms of scholarship include the scholarship of discovery, pedagogy, synthesis, and application, with some variation by scholarly area in the relative importance assigned to each of these broad categories.

2. For all promotion and tenure decisions in the College, the departmental and College personnel committees, the department chair, the external reviewers, and the dean will evaluate the candidate's scholarship statement, published works, and the other evidence provided by the candidate to determine if the candidate has developed a sustained program of scholarship and is likely to continue to be a contributing, active scholar. The evaluation of the quality of the candidate's work will be guided by the following

questions, which are based on the recommendations in *Scholarship Assessed: Evaluation of the Professoriate* by Glassick, Huber, and Maeroff:

a. Does the candidate's work identify important questions in the field and show clearly articulated goals or objectives that are realistic and achievable?
b. Does the work demonstrate adequate preparedness and an understanding of the existing scholarship in the field?
c. (If relevant) Has the candidate shown the ability to bring together the resources necessary to support his or her project(s)?
d. Are the methods used in the scholarship appropriate to the objectives?
e. Do the results indicate that the scholar was able to achieve the goals?
f. Does the scholar use appropriate forums for communicating work to its intended audiences?
g. Is there evidence in the candidate's scholarship statement that the scholar has engaged in appropriate reflective assessment of his or her own work?

3. A faculty member seeking promotion to the rank of professor must provide evidence that he or she has developed a habit of scholarship that has resulted in significant scholarly achievements since promotion to the rank of associate professor.

4. The scholarship statement should provide context for the faculty member's scholarly achievements as well as outline a path towards continued scholarship at Seattle University. It should provide evidence and reflections to enable a reviewer to answer the evaluation questions from *Scholarship Assessed*. Any information relevant to the faculty member's scholarly productivity, such as initial start-up funds or available facilities, may be included in this statement, if the faculty member feels it is relevant. The statement should highlight the faculty member's development and continued promise as an active teacher-scholar. A faculty member's scholarship statement will change over time, as the faculty member advances as a scholar. Each department should develop an official process for reviewing the scholarship statements of its faculty members.

5. Scholarship in science and engineering often involves collaboration that leads to multiple-author publications. This is both acceptable and expected. In order to allow for a proper evaluation of such work, evidence of the level and nature of the faculty member's participation in multiple-author publications must be presented.

6. In some disciplines, a publication in the proceedings of a highly selective conference is considered as significant a scholarly achievement as an article in a refereed journal. When this is the case, it is up to the candidate to make the case for giving the refereed conference publication the same weight as a refereed journal publication.

# 4 Guidelines for External Review of Tenure Candidates

## 4.1 Statement of Purpose

The granting of tenure in Science and Engineering at Seattle University is recognition that a faculty member is a valued and productive member of the faculty as indicated by teaching effectiveness, scholarship, and service to the institution and profession. Seattle University highly values active scholars who build on their scholarship to be great teachers and promote excellence in learning. The decision to grant tenure reflects a comprehensive judgment about past performance and future potential based on strengths demonstrated by the individual. The decision to grant tenure must be an informed judgment based on the mission and values of the Department, the College, and the University. By granting tenure, the University is expressing confidence that a person with proven accomplishments in a tenure-track appointment will continue to perform well and develop as a teacher and scholar.

In order to make the most informed judgment about the scholarship of each candidate for tenure, the College of Science and Engineering at Seattle University has chosen to ask external colleagues to assess the candidate's scholarly work and reflect on the candidate's potential for continued scholarship, without asking for recommendations on the tenure decision.

The external review process is based on accepted College and departmental guidelines for scholarship, as well as the recognized criteria described in the report *Scholarship Assessed.*[1] Accordingly, external assessment requests that reviewers determine if the scholarship record of the tenure candidate demonstrates

a. Clear goals
b. Adequate preparation
c. Appropriate methods
d. Significant results
e. Effective presentation
f. Reflective assessment

By creating departmental guidelines for scholarship and adopting external review of the scholarly work of its faculty, the College of Science and Engineering engages in cooperative assessment of scholarship that promotes and encourages continued scholarly growth.

## 4.2 External Reviewer Selection Process

By April 15 of the academic year prior to the tenure decision, the candidate will provide the department chair with a list of three potential reviewers. The list will include the name, association, and contact information of each prospective reviewer. Accompanying each name must be a description of the expertise, rationale and/or relationship that warranted that person's nomination as a reviewer. Candidates should keep in mind the advice from the University Rank and Tenure Committee that "the credibility of the external evaluation is directly linked to the independence of the evaluator." The candidate may not include his or her Ph.D. thesis or post-doctoral advisors as potential reviewers.

After receiving the list of potential reviewers from the candidate, the department chair will put forward to the candidate the names of additional potential reviewers until at least five potential reviewers are agreed to by the candidate.

All potential reviewers must have expertise relevant to the candidate's scholarship. They may have diverse backgrounds (e.g., academia, public and private laboratories, industry), but at least some of them should be tenured university faculty members.

The department chair will request reviews from people on the list of five or more potential reviewers until at least three people have agreed to provide reviews. If the pool of potential reviewers is exhausted before at least three persons have agreed to provide reviews, the reviewer selection process repeats until at least three reviewers have been identified. At least one of the persons agreeing to provide a review must be a tenured university faculty member. At least one of the persons agreeing to provide a review must be a person nominated by the candidate.

## 4.3 Materials to Be Sent to the External Reviewers

The candidate is responsible for assembling the appropriate materials to be sent to the reviewers for evaluation. The deadline for assembling these materials is July 1 (three months before the deadline for submitting the tenure dossier). These materials include:

- The candidate's *curriculum vitae*.
- Examples of the candidate's scholarly work. Various kinds of materials can be provided as examples of the candidate's scholarly work including, but not limited to, published journal articles, conference proceedings and abstracts, published books or book chapters, manuscripts under review or in preparation, grant proposals, and patent applications.
- The candidate's scholarship statement. The scholarship statement should provide context for the candidate's scholarly achievements as well as outline a path towards continued scholarship at Seattle University.
- The College guidelines and any departmental guidelines on scholarly expectations for promotion and tenure.

## 4.4 Example Letter to Reviewer

July 5, 2010

Dr. Jane Green
St. Ignatius University
Loyola, East Dakota

Dear Professor Green:

Thank you for agreeing to be an external reviewer for Dr. Amanda Able, a tenure candidate in the Department of Mathematics at Seattle University. We look to you for your assessment of Dr. Able's research and scholarship. To help you in your evaluation, we have included a copy of Dr. Able's *curriculum vitae,* examples of her scholarly work, her scholarship statement, and the College guidelines on scholarly expectations for promotion and tenure.

The Department of Mathematics serves an undergraduate student population, and we expect our tenured faculty members to be active scholars who build on their scholarship to be great teachers who promote excellence in learning. We would like your letter to answer this central question: **To what extent does the candidate's scholarly record and scholarship statement demonstrate that she has developed a sustained program of scholarship and provide evidence that she will continue to be a contributing, active scholar in her field?**

To help you frame your answer to this question, please think about the following issues—adapted from *Scholarship Assessed*—as you read through the materials. (Note: We do *not* expect you to address each of these bullets explicitly in your letter.)

- Does the candidate's work identify important questions in the field and show clearly articulated goals or objectives that are realistic and achievable?
- Does the work demonstrate adequate preparedness and an understanding of the existing scholarship in the field?
- (If relevant) Has the candidate shown the ability to bring together the resources necessary to support her project(s)?
- Are the methods used in the scholarship appropriate to the objectives?
- Do the results indicate that the scholar was able to achieve the goals?
- Does the scholar use appropriate forums for communicating work to its intended audiences?
- Is there evidence in the scholarship statement that the scholar has engaged in appropriate reflective assessment of her own work?

We do not expect a promotion and tenure recommendation, and please do not comment on how the candidate might do relative to the tenure or promotion standards of your university or department. If you wish further information, do not hesitate to contact me. Thank you again for agreeing to provide your review by **September 10**.

Sincerely,

John Smith, Ph.D.
Chair, Department of Mathematics

## 4.5 Notes

1. External reviews will begin with faculty candidates submitting tenure files in the fall of 2010.
2. Any faculty member scheduled to submit a tenure file in the fall of 2010 may submit his or her scholarship statement by January 5, 2010 for review by his or her departmental personnel committee and department chair, as well as the College Personnel Committee.

# 5 Service Expectations for Promotion and Tenure

It is the responsibility of faculty members seeking promotion and/or tenure to demonstrate their genuine commitment to service by carefully documenting their service activities in the dossier they submit. The College recognizes various forms of service: service to the department, the College, or the University; service to professional organizations or societies; serving as a journal editor or referee of scholarly presses or proposals; and providing professional expertise in community/public settings.

Candidates for promotion to associate professor should be able to provide evidence of their willingness and ability to perform quality service to their department and the College or the University. However, care should be taken by the tenure-track faculty member and his/her chairperson/dean to ensure the service assignments undertaken by the faculty member are appropriate in responsibility, number and time-commitment to support the individual's efforts in the areas of teaching and scholarship.

The College expects candidates for promotion to professor to provide evidence of continued quality service to their department and substantial service at the College and University levels. The College's expectations regarding College and University service are significantly higher for candidates for promotion to professor than its expectations for candidates for promotion to associate professor.

# 6 Timelines for Evaluations of Candidates

## 6.1 Timeline for Candidates for Tenure and/or Promotion

All procedures are to be carried out in accordance with the current Seattle University Faculty Handbook, particularly Sections 3, 4 and 5. When any of the calendar date deadlines below fall on a weekend, the following class day will suffice.

**By April 15:**

- Tenured faculty members who plan to apply for promotion during the following fall quarter inform the Dean of this decision.
- The Dean confirms with the Provost and the department chairs the names of faculty members who will be considered for promotion and tenure in fall quarter.
- Candidates for promotion to professor provide to the Dean and department chair names of potential external peer evaluators of their scholarly work.
- Candidates for promotion to associate professor and tenure provide to the department chair names of potential external peer evaluators of their scholarly work.

**By May 25:**

- Following the external reviewer selection process described in Section 2.2, the Dean or department chair will obtain commitments from at least three and no more than five external evaluators to provide written evaluations to the departmental committee by October 1.

- For each candidate, in consultation with the candidate's department chair, the Dean appoints a departmental committee.

**Before end of Spring Quarter:**

- Members of the College Personnel Committee for the following academic year are elected and appointed.
- The Dean notifies the College Personnel Committee of the names of candidates for promotion and tenure.
- In a meeting with candidates, their department chairs, members of the departmental Committees, and of the College Personnel Committee, the Dean discusses and clarifies the review procedures.

**By July 1:**

- The faculty member provides the materials to be sent to external reviewers as described in Section 2.3 of this document, including a *curriculum vitae*, a scholarship statement and examples of the candidate's scholarly work.
- Requests for reviews accompanied by the material provided by the candidate are to be sent early in July, with a due date of September 10.

**Before October 1**, each candidate prepares a file, in accordance with the "Guidelines for File Preparation and Presentation," from the University Rank and Tenure Committee; the College Personnel Committee recommends that the candidate include a statement of teaching philosophy.

**By October 1:**

- The candidate gives the file to the departmental committee and the department chair.

Both the department chair and the departmental committee will examine the file and write evaluations before the file goes forward to the College Personnel Committee. When the file leaves the department, it will include results of the departmental committee's and the chair's evaluations of the candidate's teaching, scholarly work, and service. The department's section of the file will include peer reviews of teaching, (and, in the case of candidates for promotion to professor, peer reviews of scholarly work), an analysis of grading patterns of the candidate within the context of the departmental faculty, and a clear statement of the role of the candidate in the department. The committee recommendation includes a vote, indicated as number of members for/against tenure and/or promotion. According to the Seattle University Faculty Handbook, the chair's and departmental committee's written evaluations and recommendations for tenure and promotion are held to be confidential and **are not** made available to the candidate. In the case of candidates for promotion to professor, peer reviews of scholarly work would also be considered to be confidential, and not available to the candidate.

**By October 15:**

- The candidate's file, containing the departmental committee's and chair's evaluations and recommendations, is forwarded to the College Personnel Committee.

The College Personnel Committee then reviews each file, and writes an evaluation and recommendation before the file goes forward. The recommendation includes a vote of the Committee, indicated as number of members for/against tenure and/or promotion. According to the Seattle University Faculty Handbook, the College Personnel Committee's written evaluations

and recommendations for tenure and promotion are held to be confidential and **are not** made available to the candidate.

**By November 15:**

- The candidate's file, containing evaluations and recommendations from the department chair, departmental committee, and the College Personnel Committee, is forwarded to the Dean.

According to the Seattle University Faculty Handbook, the Dean has the prerogative to require a re-examination of the file by the department and/or College Personnel Committee in the event that it appears that the review has not been thoroughly conducted and the recommendation soundly based. Before making a decision on a recommendation, the Dean prepares a written summary of the recommendations of the departmental committee, department chair, and College Personnel Committee and provides this to the candidate, and the candidate is given an opportunity to respond. The candidate may choose to have his/her department chair present during discussion with the Dean, on the request for tenure and/or promotion. The Dean then writes a separate recommendation, a copy of which is to be provided to the candidate, and forwards the file to the Provost's Office.

**By December 1:**

- All files are received at the Provost's Office.

## 6.2 Timeline for Three-Year Reviews

All procedures are to be carried out in accordance with the current Seattle University Faculty Handbook, particularly Sections 3, 4 and 5. When any of the calendar date deadlines below fall on a weekend, the following class day will suffice.

**By May 15:**

- The Dean confirms with the Provost and the department chairs the names of faculty members who will undergo interim reviews during the upcoming academic year.

**Before end of Spring Quarter:**

- For each candidate, in consultation with the candidate's department chair, the Dean appoints a departmental committee.
- The Dean notifies the College Personnel Committee of the names of candidates for interim reviews.
- In a meeting with candidates, their department chairs, members of the departmental committees, and of the College Personnel Committee, the Dean discusses and clarifies the review procedures.

**Before January 5**, each candidate then prepares a file, in accordance with the "Guidelines for File Preparation and Presentation" from the University Rank and Tenure Committee; the College Personnel Committee recommends that the candidate include a statement of teaching philosophy.

**By January 5 :**

- The candidate gives the file to the departmental committee and the department chair.

Both the department chair and the departmental committee will examine the file and write evaluations before the file goes forward to the College Personnel Committee. When the file leaves the department, it will include results of the departmental committee's and the chair's evaluations of the Candidate's teaching, scholarly work, and service. The department's report will contain evaluative comments, peer reviews, an analysis of grading patterns of the candidate within the context of the departmental faculty, and a statement as to the progress of the candidate toward tenure and promotion. It may contain suggestions for improvements. As part of their reports, the chair and departmental committee are expected to describe the role of the candidate in the context of the department's work and goals. No votes are recorded for interim reviews. According to the Seattle University Faculty Handbook, the chair's and departmental committee's written evaluations and recommendations at the interim reviews are considered developmental (formative), and copies of them **are** to be made available to the candidate.

**By January 20:**

- The candidate's file, containing the departmental committee's and chair's evaluations and suggestions, is forwarded to the College Personnel Committee.

The College Personnel Committee reviews each file and writes an evaluation and recommendation, including a statement as to the progress of the candidate toward tenure and promotion. No votes are recorded for interim reviews. According to the Seattle University Faculty Handbook, the College Personnel Committee's written evaluation and recommendation at the interim review is considered developmental (formative), and a copy of it **is** to be made available to the candidate.

**By February 20:**

- The candidate's file, containing evaluations and recommendations from the department chair, departmental committee, and the College Personnel Committee, is forwarded to the Dean.

According to the Seattle University Faculty Handbook, the Dean has the prerogative to require a re-examination of the file by the department and/or College Personnel Committee in the event that it appears that the review has not been thoroughly conducted and the recommendation soundly based. Before making a decision on a recommendation, the Dean meets with the candidate, and the candidate is given an opportunity to respond, orally or in writing, to the recommendations of the departmental committee, department chair and College Personnel Committee. The candidate may choose to have his/her department chair present during discussion with the Dean. The Dean then writes a separate recommendation, including a statement as to the progress of the candidate toward tenure and promotion. A copy of this recommendation is given to the candidate, and the Dean forwards the file to the Provost's Office.

**By March 5:**

- All files are received at the Provost's Office.

# Application for Teaching Release for Research and Scholarship (Tenured Faculty Only)

College of Science and Engineering

*Due January 12, 2016*

**Note:** This form should only be filled out by tenured faculty members; tenure-track faculty members are guaranteed a teaching release.

**Instructions:**

1. Use this form to apply for a teaching release for research and scholarship in 2016-17.
2. Section B.5 is the only section that requires an essay answer; your response to every other section should simply be a list of publications, presentations, or grant proposals.
3. For published work and funded grant proposals, provide full citations. For unpublished work and pending grant proposals, include co-authors and co-principal investigators.
4. When listing published refereed conference papers, include the acceptance rate, if known.
5. Underline the names of student co-authors.
6. When listing presentations, put the name(s) of the presenter(s) in italics.
7. If you have no information for a particular field, respond with "N/A".
8. When you have finished editing the form, convert it to a PDF file.

**Deadline:** Email the PDF of the completed form to your department chair by January 12, 2016.

**Name:**

**Date:**

## A. List Scholarly Accomplishments since January 1, 2011.

### A.1. Publications in peer-reviewed journals or highly selective conferences (conference paper acceptance rate <30%)

### A.2. Publications in other conferences where full papers are refereed (not just paper abstracts)

### A.3. Contributed talks at conferences where abstracts are reviewed

### A.4. Poster presentations (excluding Seattle U. functions)

### A.5. Invited presentations (excluding Seattle U. functions)

**A.6. Books and book chapters**

**A.7. Other scholarly products (articles, papers, reports, patents, etc.)**

**A.8. Oral and poster presentations by students you have supervised (excluding Seattle U. functions)**

**A.9. External grants funded**

**A.10. External grants applied for but not funded**

## B. List Work in Progress and Expected Results in 2016

**B.1. Manuscripts currently under revision (name journal)**

**B.2. Manuscripts currently under review (name journal or conference)**

**B.3. Manuscripts currently in preparation and intended audience (name journal or conference)**

**B.4. Grant proposals currently under review**

**B.5. Brief description of research and scholarly work planned for 2016 (250 words maximum)**

**B.6. Manuscripts you plan to begin in 2016 (name tentative title and intended journal or conference)**

**B.7. Grant proposals you plan to submit 2016 (name intended funding agency, tentative title, and approximate amount)**

# Essay Application for Teaching Release for Research and Scholarship (Tenured Faculty Only)

College of Science and Engineering

"Scholarship refers to creative intellectual work whose significance is validated by external peers and which is communicated outside the University. For the College of Science and Engineering, appropriate forms of scholarship include the scholarship of discovery, pedagogy, synthesis, and application, with some variation by scholarly area in the relative importance assigned to each of these broad categories. … Much of the vibrancy of colleges and universities comes from the scholarly work done by faculty and students. This active scholarship is vital to the intellectual health of primarily undergraduate colleges, such as the College of Science and Engineering at Seattle University, where faculty mentor students participating in undergraduate research and senior design projects" [*Guidelines for Promotion and Tenure in the College of Science and Engineering,* adopted by a vote of the tenured and tenure-track faculty, May 14, 2009].

**Instructions:**

1. You may use this form rather than the "Application for Teaching Release for Research and Scholarship" form to apply for a teaching release for research and scholarship in 2016-17.
2. Write a 2-to-5 page scholarship statement that demonstrates you are an active scholar. The evaluation of the quality of your scholarship will be guided by the seven questions appearing in Section 3.2 of the *Guidelines for Promotion and Tenure in the College of Science and Engineering*. Your statement should focus on your program of research and your scholarly accomplishments since January 1, 2011. For each student you have mentored in research during this time period, briefly describe that student's work and accomplishments, as well as the student's placement after graduation, if relevant.
3. When you have completed your scholarship statement, convert it to a PDF file and mail the PDF file to Pat Whitney.

**Name:**

**Department:**

**Date:**