

Chemistry Department Guidelines for Promotion and Tenure

Introduction

The Chemistry Department is dedicated to Linfield's Mission of advancing a vision of learning, life, and community that:

- Promotes intellectual challenge and creativity
- Values both theoretical and practical knowledge
- Engages thoughtful dialogue in a climate of mutual respect
- Honors the rich texture of diverse cultures and varied ways of understanding
- Piques curiosity for a lifetime of inquiry
- Inspires courage to live by moral and spiritual principle, and
- Empowers the defense of freedom of conscience

Our Department promotes the Mission of the University in our evaluation of faculty for promotion and tenure. In particular, *we value an integrated approach in which our faculty members blend teaching, professional work, and service to the University and community.* Our Department generally recommends that tenure and promotion to associate professor are linked.

The Department has reviewed materials from comparable institutions to develop the following guidelines. Within each category identified in the Faculty Handbook, the Department has provided a narrative to refine the expectations to which our faculty are held and has assembled a three-tiered list of exemplars which can provide evidence of a candidate's accomplishments in each category. The tiers are meant to allow the Department to track the arc of a candidate's career as the candidate matures as a faculty member and serves the Department and the University.

Categories and Criteria

1. Teaching Effectiveness

In agreement with the Faculty Handbook, the Chemistry Department values teaching effectiveness as the most important category in evaluating a candidate for promotion and tenure. Candidates are expected to pursue excellence in teaching in the classroom and laboratory, to contribute to the departmental curriculum, and to provide advising/mentoring to students.

Teaching Excellence

The Chemistry Department considers hallmarks of excellence in teaching to be the following:

- Thoughtful coverage of subject matter, and effective presentation of relevant material
- Enthusiasm for gaining and sharing knowledge
- Creation and encouragement of student interest in subject matter
- Good organization of all aspects of lectures and laboratories
- Availability for interaction/consultation with students outside of class
- Attention and responsiveness to each student's individual needs
- Use of clear and consistent methods of evaluating student performance
- Application of fair grading methods

Thoughtful development of these hallmarks requires a cycle of planning, implementation, reflection, and adjustment which should be clearly demonstrated in a candidate's promotion and tenure file. As part of the ongoing evolution of courses, the Department encourages all members to continually explore creativity in class presentations and, as warranted, to implement new teaching strategies/methodologies.

The Department recognizes that excellence in teaching is also expressed outside the classroom in the context of student-faculty collaborative research (SFCG), since it is the role of the faculty mentor to introduce the background material for a research project, to help students learn how to ask questions about research, and to oversee data collection, analysis, interpretation, and dissemination. Effective mentorship in the research setting trains students to be independent researchers while also maintaining high professional caliber and rigor of a research project. While SFCR is fundamentally a professional achievement, the department recognizes that aspects of it may be considered teaching effectiveness. It is incumbent upon the candidate to articulate which components of a SFCR project are teaching effectiveness and which are professional achievement. For example, teaching students how to use chemical instrumentation, introducing them to scientific writing or learning an experimental protocol are aspects of teaching. The development of new experimental protocols in response to observations, generation and interpretation of data, or the presentation or publication of research findings are in the area of professional achievement.

Contributions to the Department Curriculum

The Department offers a range of courses designed to meet the needs of three distinct student populations. These courses are classified as courses for chemistry majors (“**Majors**”), support courses (“**Support**”) that are prerequisites/requirements for other majors, and service courses (“**Service**”) which carry an LC designation.

Majors: courses structured using criteria set by the American Chemical Society (ACS). These courses may include traditional lecture, laboratories, research activities, or any combination of these approaches. The course content, number of laboratory hours, types of experiments performed, and instrumentation used is usually in accordance with ACS certification criteria. Majors courses may also be support and/or service courses.

Support: courses organized to provide a foundation of chemical knowledge for pre-professional students (pre-medicine, pre-dentistry, pre-veterinary) or for majors that require chemistry. This category comprises General Chemistry, Organic Chemistry, Physical Chemistry I, and Biochemistry (first semester).

Service: courses specified as part of the Natural World LC group. This category comprises INQS offerings, non-majors courses, and General Chemistry.

A candidate for promotion or tenure is expected to develop the skills necessary to demonstrate teaching excellence by meeting the unique demands of courses in each category. The **Majors** courses, which draw extensively on the expertise and training of the instructor, require continual renewal as the discipline evolves and new expectations are placed on the

Department as part of ACS certification. The **Support** courses, which are of significant value to the Department and the University in terms of success and retention of students, require the ability to maintain rigorous academic standards while also accounting for the wide range of student abilities and backgrounds enrolled in these courses. The **Service** courses present the challenge of introducing scientific methodology to the broader University audience, and successfully reaching this audience is viewed favorably as a contribution to the University.

Laboratory Instruction: In accordance with ACS certification guidelines, most courses in the Chemistry Department include a laboratory requirement. The laboratory experience serves as both a pedagogical tool and as an important aspect of preparing our students for the technical challenges they will face in industry, research, and professional careers. Faculty are expected to approach the development and delivery of laboratory sections of courses with the same thoughtfulness, enthusiasm, and creativity they display for other aspects of the course. The Department considers the development of new labs for existing courses to be an important contribution to the department curriculum, and appreciates the extensive time and energy committed by a faculty member during this process.

Individual Instruction Load/Roles: A candidate may teach courses in any or all of the three course categories (listed above), as needed by the enrollment demands of the University and the Department, and the Department pays particular attention to a candidate's contributions in this area. Additionally, the Department considers the development of new courses within the Department, or the development of interdisciplinary courses, to represent significant contributions to the department curriculum.

Advising and Mentoring: The Department expects the candidate to actively serve in an advisory role to our students, with an increasing emphasis put on this role after the candidate's first or second year of employment. The Department encourages all faculty members to be as open and available to students as possible, as permitted by their workloads and schedules. As part of this interaction, the Department desires that all faculty members be both supportive and challenging in helping students develop to their full potentials. Candidates in formal advisory roles must be able to advise students on courses within the chemistry major and on the general requirements (LCs) of the University. The Department expects that each member of the faculty will keep abreast of all program and University requirements for graduation.

Departmental Criteria for Evaluation of Teaching Effectiveness

A candidate for promotion and tenure must demonstrate a consistent adherence to the expectations outlined above for excellence in teaching, contributions to the departmental curriculum, and advising/mentoring of students. Students will evaluate teaching effectiveness by using the University-wide course evaluation system, and departmental colleagues will evaluate the candidate by carrying out in-classroom assessments. Furthermore, the candidate will carry out regular self-appraisals. Other supporting materials or letters may be included among a candidate's teaching effectiveness evaluation documents at the discretion of the candidate.

Candidates for **promotion to Associate Professor and/or Tenure** will show evidence that they are on a trajectory towards excellence in teaching and development of an effective teaching style. They will fulfill the Lower Tier Teaching Effectiveness standards (listed below)

and show progress towards Middle Tier and Higher Tier Teaching Effectiveness standards. The list of exemplars below is meant to serve only as a representative list of ways a candidate may meet each Tier of Teaching Effectiveness standards, not a comprehensive checklist on which every item must be met. Items listed in each tier are not ranked. Tenured Department colleagues and the Department Chair should observe the candidate in class prior to professional development meetings (described in the Faculty Handbook). The candidate will be provided with a written report to be used only by the candidate based on the classroom observation. These reports will discuss strengths of the candidate's teaching and why the strengths are important, improvements the candidate can make with suggestions of how to make them, and any insights the observer gained from the classroom observation. Each candidate should complete a brief self-appraisal yearly reflecting on personal strengths and possible changes and share this appraisal with other members of the Department for comment. A candidate's professional development meetings will include formal self-appraisals for review of information summarizing each of these assessment methods including student course evaluations.

Candidates for **promotion to Full Professor** must demonstrate special merit, which includes consistently strong teaching evaluations from students, leadership in teaching excellence, and demonstrated excellence in the area of teaching effectiveness. They will fulfill the Lower and Middle Tier Teaching Effectiveness standards and show progress towards fulfilling the Higher Tier Teaching Effectiveness standards. Each tenured member of the department should observe the candidate in class at least once every two years, and provide a written report to the candidate as described above. The Department recommends that each candidate complete a self-appraisal at the end of each academic year reflecting on the candidate's teaching effectiveness and development to be only used by the candidate but shared with departmental colleagues for comment. A candidate's professional development meetings will include formal self-appraisals for review of information summarizing each of these assessment methods including student course evaluations.

Exemplars for Teaching Effectiveness

Lower Tier Teaching Effectiveness

- Contribution to the majors, support, and service courses of the Department, as needed
- Participation in/contribution to laboratory sections of courses
- Documentation of advising activities, including provision of general career counseling

Middle Tier Teaching Effectiveness

- Coordination of multi-section support courses, including preparation of syllabus and lecture materials, and integration of the laboratory experiments with the lecture
- Development and implementation of new laboratory and/or lecture materials for existing courses
- Participation in regional or national pedagogical workshops and/or conferences (at Linfield or elsewhere)
- Participation in University freshman retention programs
- Involvement with the ACS Student Affiliate chapter
- Supervision of independent study courses

Higher Tier Teaching Effectiveness

- Reception of internal or external recognition of teaching excellence, in the form of teaching awards, etc.
- Coordination and development of curriculum materials associated with ACS certification of Departmental curriculum
- Significant contribution to the curriculum and utilization of expertise to develop service courses such as those with the INQS or LC designation or developing or completely redesigning a majors course
- Development of pedagogical approaches backed by Discipline Based Education Research (DBER) through the cycle of planning, implementation, reflection, and adjustment
- Reception of an invitation to participate in one or more DBER research projects
- Participation in the ACS Committee on Professional Training (ACS CPT)
- Facilitation of teaching workshops at Linfield (i.e., an FTLL session) and externally at the local, state, and/or national level

2. Professional Achievement

The Chemistry Department values professional activity that has direct impact on the undergraduate students at Linfield University. Research in chemistry, including both bench and theoretical work, is a collaborative enterprise that should typically result in the production of scholarly work such as journal articles, posters, book chapters, presentations, and grant proposals. All of these can be peer-reviewed, and journal articles and grant proposals are always peer-reviewed. In all examples of scholarly work output, multiple authors are usually involved, and the order in which authors are acknowledged is not necessarily directly related to the relative contributions of each author (the candidate will explain the role of any collaborators and clarify author order). The Department considers research that directly incorporates Linfield students as co-authors or collaborators to be of particular value to the Department. Additionally, the Department considers pedagogical research and publication in the field of Scholarship of Teaching and Learning (SoTL) within a candidate's area, or within interdisciplinary areas to be of equal status with research in a candidate's area of chemistry as these journals require the same peer-review as discipline-specific publications. All peer-reviewed journals whether discipline-specific, general, or interdisciplinary are valued as publications.

Student-Faculty Collaborative Research

The Chemistry Department considers the student-faculty collaborative research (SFCR) experience to be of central importance to the declared mission of the Department and of the University. Furthermore, participation in authentic research activities is expected of any student attempting to enter graduate programs in chemistry or closely related fields. Establishing research projects that allow productive faculty-student research to be carried out entails a significant intellectual effort and time commitment on the part of a faculty candidate for promotion and tenure.

The candidate shapes student projects in a way that allows student researchers to develop their skills and expertise in a given field, and also to make contributions in the field of the candidate's broader research interests. The candidate is responsible for establishing the central research question, for parsing the question into individual projects, for acquiring material and financial support, for constructing and/or maintaining the necessary instrumentation, and for

training and mentoring student researchers in the laboratory. Active research time spent with students primarily occurs during the spring semester (9-20 student hours/week per student depending on the number of credits being earned) and during the summer term (400 student hours/summer per student). The Department recognizes that the pace of research at an undergraduate institution is typically significantly slower than it is at a major research institution with a graduate program, and that it is common for a research project to take many years from initiation to publication.

There are aspects of faculty-student collaborative research that recognizable as teaching, such as the teaching of a particular experimental protocol, learning scientific writing, or instruction in the use of chemical instrumentation. There are also aspects that are distinctly professional achievement, which would include developing new experimental protocols, generation and evaluation of data, conference presentations (by students or faculty, posters or talks), and submission of manuscripts for peer-review and publication.

Research Dissemination

Faculty may disseminate the results of their collaborative research activities via research posters, oral presentations, and peer-reviewed publications. A publication in a scientific journal often represents several years of work, and the length of a publication in the sciences should not be used to judge its quality due to the fact that many journals strictly limit the length of articles they will accept and still have highly competitive acceptance rates. The Department understands that most manuscripts require some degree of revision before acceptance for publication, and depending on the degree of revision required, it is typical for 2-12 months to pass between initial submission of a manuscript and publication. In addition to fully published articles, the Chemistry Department also includes articles that are accepted for publication or in press as evidence of professional achievement, in accordance with the standards of the larger chemistry community and recommendations of publishers. In general, peer-reviewed publications carry the most weight. Submission of research to a journal for peer-review that does not get published is evidence of Lower-Tier Professional Achievement (such a submission results in a several month-long time frame peer-review, often with suggested additional experiments, and revision). The weight of oral presentations and posters depend on the venue and vetting process. It is incumbent upon the candidate to make these distinctions and describe the vetting process in these cases. Departmental colleagues should provide perspective in colleague appraisals.

Grant Preparation and Submission

Grant funding at research institutions typically comes from national funding agencies, such as the National Science Foundation (NSF) and the National Institutes of Health (NIH). Grants from these agencies are peer-reviewed and are extremely competitive and are judged on their scientific merit and the contributions the proposed research will make to the field and training of future scientists. Funding rates for these grants are frequently less than 20%, and of that number even fewer are fully funded at the requested level. Securing funding from one of these agencies is strong endorsement for the research project and will likely lead to publication of the work in top peer-reviewed journals. Funding for faculty at liberal arts colleges may be available through private agencies and foundations, such as the Murdock Trust, the Petroleum Research Foundation, and the Dreyfus Foundation. Grants from these agencies are peer-reviewed or reviewed at the foundation level and are highly competitive. It is not uncommon for grant

proposals to receive favorable peer-review from selected experts in the appropriate field, but still not receive funding after review by the appropriate agency or foundation. The Department recognizes that the preparation of a proposal for external funding is a significant professional achievement, and therefore values even unfunded proposals as such, especially those that receive favorable comments from review panels and program directors. The weight (tier) is a function of the agencies assessment of the grant proposal, with funding of a grant being a higher-tier achievement.

Departmental Criteria for Evaluation of Professional Achievement

Candidates for **promotion to Associate Professor and/or Tenure** must meet the majority of exemplars defined as Lower Tier Professional Achievement (listed below) and be able to demonstrate ongoing Middle Tier (2 – 3 items) Professional Achievement and progress towards achieving Higher Tier (no expectations of having met any of these) Professional Achievement. These do not need to be separate bullet points (for example, three peer-reviewed publications from a Candidate's graduate work would meet this tier). This is true in all the cases that follow. The Department recognizes that candidates at this level will have begun to develop an independent research program, and that many of their professional achievements will include publications from their graduate and/or postdoctoral work, thus an expectation of peer-reviewed publications (including, but not limited to this prior work) is expected at the time of promotion to associate professor. Candidates at this stage are not expected to have publications based on SFCR at Linfield.

Many funding agencies have specific programs for new tenure-track faculty, and the Department expects assistant professors to submit proposals to these agencies, and departmental colleagues are expected to provide their perspectives on the merit of the proposals. The Department values submission of a grant proposal as Professional Achievement (note tiers in exemplars below for funded, not funded but positive reviews, not funded with negative reviews).

Candidates for **promotion to Full Professor** must meet the criterion of special merit. The Department expects candidates at this level to demonstrate special merit in professional achievement by providing evidence of an ongoing and productive original research program that features significant contributions from Linfield undergraduates. Thus, these candidates are expected to have shown during their tenure as associate professors a record of ongoing and significant Middle (4-6 items as an example) and Higher Tier (2 – 4 items as an example) Professional Achievement depending on the depth of activity in any item listed. There are no special grant programs for middle career faculty in chemistry for research; therefore, it is less likely that these candidates will successfully secure external funding. Other types of grants for instrumentation, programming and institutional scholarships using professional expertise are looked upon favorably with positive comments or funding.

Differentiation between candidates for tenure and promotion to associate professor, and candidates for promotion to full professor.

The Department recognizes that the lists of these exemplars are not exhaustive, and they are not meant to serve as a checklist. Candidates are not expected to have met all of the exemplars listed below for every tier, but should be able to make a case based on what they have accomplished. Candidates for tenure and promotion to Associate Professor are not expected to

have evidence of higher tier professional achievement, while candidates for promotion to Full Professor must have at least 2– 4 examples that fit that category.

Exemplars for Professional Achievement

Lower Tier Professional Achievement

- Submission of a grant proposal (unfunded, without positive feedback)
- Peer-reviewed publications resulting from graduate and/or postdoctoral work
- Presentation of a poster at a regional meeting, such as the Murdock Conference or the Oregon Academy of Sciences Conference that includes Linfield undergraduate co-authors and/or external collaborators as dissemination of SFCR
- Seminar presentation of scholarship to a general or undergraduate audience
- Submission of a manuscript for publication that includes Linfield undergraduate coauthors and/or external collaborators as dissemination of SFCR
- Research that is not published but is referenced in a peer-reviewed journal
- Professional consultation that is both short-term and for no remuneration. Examples might include providing chemical consultation to local businesses (wineries or breweries)
- Membership in a scholarly society (e.g., the ACS, the Electrochemical Society)
- Development of teaching materials
- Testing new pedagogical approaches associated with SoTL which implies a vetting process by professional peers (such as publication at the POGIL activity clearing house)
- Research with Linfield undergraduate students (SFCR)

Middle Tier Professional Achievement

- Submission of a grant proposal with subsequent positive feedback (although not yet funded)
- Seminar presentation of scholarship to a professional or graduate audience
- Submission of a manuscript for publication with subsequent positive feedback (although not yet accepted for publication) that includes Linfield undergraduate coauthors and/or external collaborators as dissemination of SFCR
- Professional consultation which is either long-term or remunerated
- Development, assessment and dissemination of teaching materials for distribution to colleagues
- Experimental implementation of new pedagogical approaches, assessment and dissemination of their outcomes associated with SoTL
- Presentation of a research paper or poster at a national meeting that includes Linfield undergraduate coauthors and/or external collaborators as dissemination of SFCR
- Review and beta-testing solicited by national programs of curricular materials (textbooks, student-centered active learning such as process-oriented guided inquiry learning (POGIL) activities, lab experiments)
- Peer-reviewed publications resulting from work at institutions prior to Linfield, in which the candidate was the principle investigator

Higher Tier Professional Achievement

- Submission and successful funding of a grant proposal

- Publication of research done at Linfield or while at Linfield in a peer-reviewed journal— inclusion of Linfield undergraduates as co-authors is the gold standard of SFCR
- Presentation at a national meeting of a paper or poster based on SoTL studies (can be interdisciplinary)
- Authorship of curricular materials with subsequent peer-reviewed publication
- Delivery of an invited paper at a national meeting
- Review of a journal article as a referee
- Invited review of grant proposals for national and international foundations (NSF, NIH, etc.) which demonstrates expertise in a chemistry and/or educational discipline
- Primary facilitation of a workshop, or chairing a session at a national meeting
- Extensive, professional consultation resulting in documentation showing the candidate's expertise in chemistry or chemical education
- Authorship of a textbook
- Development of teaching materials for commercial distribution that have been peer-reviewed or vetted via a professional editorial process

3. Service

The Department defines service activities as those activities that help further the mission of the University, contribute to one's profession, or show involvement in one's community. Faculty service at the University level is the foundation upon which effective shared governance is built.

A candidate is expected to participate in professional and public service, and to make contributions to the University through utilization of special skills or expertise in the resolution of problems or in application to specific needs. *Professional service* may include membership and leadership in professional organizations. We distinguish service in this area from achievement by noting that a candidate need not produce published documentation (for example, reports or reviews), but actively participates in the society. A candidate also may attend meetings, conferences, workshops, and in-service sessions hosted by professional organizations and potentially present work in those meetings. *Public service* is the application of professional expertise by active involvement as an advisor or consultant to business, government, and non-campus groups, which need not result in published documents related to the service provided. *Contribution to the University* includes governance activities as a member of or resource to appointive/elective groups or committees at the University, Division, Department, or Discipline levels. These contributions can also be made by serving as an advisor to on-campus groups or individuals. Service at the Department level can include routine operation, maintenance, and repair of the instrumentation associated with courses. In each of these areas, it is incumbent on the candidate to distinguish between Professional Achievement and Service where appropriate.

The Department expects that candidates will become increasingly active in service, assuming increased responsibilities over the course of their careers at the University, pre- and post-tenure. Pre-tenure candidates should carefully select their service duties in order to focus on establishing their programs of teaching and scholarship.

In the case a candidate is asked to assume a service role that the Department agrees is above and beyond the candidate's normal responsibilities, the candidate may receive reassigned instructional time to assume the extra responsibilities.

Departmental Criteria for Evaluation of Service

Candidates for **promotion to Associate Professor and/or Tenure** must be able to demonstrate ongoing Lower and Middle Tier Service and achieve at least one of the items in Higher Tier Service.

Candidates for **promotion to Full Professor** must meet the criterion of special merit. The Department expects candidates at this level to demonstrate special merit in service during their tenure as associate professor a record of ongoing and significant Lower and Middle Tier Service in addition to increased Higher Tier Service.

Exemplars for Service

Lower Tier Service

- Effective participation in Departmental and Divisional affairs
- Demonstrated work with student activities and organizations
- Service to Online and Continuing Education
- Contributions to maintaining efficient operations of the Department (purchasing, inventory, laboratory safety review, student supervision, etc.)
- Membership in professional organizations (see above for distinction with Professional Achievement)

Middle Tier Service

- Direct assistance with external relations work of the University (recruiting students, speaking to alumni groups, administering or grading scholarship weekend exams)
- Leadership of iFOCUS (pre-orientation camp for new Linfield students, in which the faculty member leads a research-based hands-on experience) activities on behalf of the Chemistry Department
- Contributions to maintaining efficient operation of Department instrumentation
- Regular and effective participation on University-wide standing committees of the faculty
- Participation in ad-hoc committees, including search committees

Higher Tier Service

- Appointment as Department or Program Chair
- Service to the external community using professional knowledge and skills
- Leadership/service involving a professional society/organization
- Chairmanship/leadership positions of University-wide standing committees of the faculty
- Other high-level University related service (taskforces, administrative positions)
- Facilitation of evaluation of transfer credits for counting towards a Linfield degree
- Maintenance of certification standards from the ACS
- Commendable service to the Department through maintenance, repair, and networking of instruments and general infrastructure

External Institutions

The Chemistry Department has obtained the Promotion and Tenure guidelines from Chemistry Departments at Pacific University and University of Puget Sound. These departments are similar

in size and mission to our department so their evaluation of faculty for promotion and tenure serve as reasonable evidence that our draft guidelines are comparable.