November 7, 2016

To: Graduate Council

From: Departments of Pharmaceutical Sciences, Biochemistry and Biophysics, Environmental and Molecular Toxicology, Integrative Biology, Microbiology.

Subject: Exemption from 36-didactic credit minimum requirement

The departments listed above request an exemption from the rule that requires “a minimum of one full-time academic year (at least 36 graduate credits) on a doctoral program.” A change to a minimum of 24 credits on a doctoral program is justified in the discussion below.

This request arises from consideration of doctoral program outcomes, at the university and program levels, as well as graduate program reviews and academic unit strategic plans. The university level doctoral program outcomes to 1) produce and defend an original significant contribution to knowledge, 2) demonstrate mastery of subject material, and 3) conduct scholarly or professional activities in an ethical manner, are extended by program level outcomes to 4) prepare students, through appropriate training, to enter their chosen profession. Achievement of these four general outcomes is correlated to metrics detailed in annual self-assessment and evaluation reports by each graduate program to the Graduate School, and generally include performance on preliminary candidacy and thesis exams, peer-reviewed publications, research presentations at internal and external scientific meetings, awards obtained and placement in job/career positions of choice. In the broad context of the doctoral program outcomes, at least for the programs that are part of this request, it is the experiential training in planning, carrying out and reporting/presenting research that is central to success of doctoral students; typically, some didactic course work is also important for providing a breadth of disciplinary knowledge beyond one’s specific research focus, but is not a dominant focus. Indeed, underscoring this reality, it is notable that potential employers of doctoral program graduates do not ask for GPA information or academic transcripts as part of job application packages. The Curriculum Vitae and letters of recommendation, together with assessment of contributions to and quality of published research as well as communication and presentation skills, and potentially time to completion of the thesis, are used as indicators of effective training in conducting and disseminating research.

In order to support the successful entry of doctoral graduates into their chosen career fields in the current job market, individual departments have identified the need for and developed various specific training activities, apart from didactic coursework, to enhance relevant skill sets and ultimately distinguish their doctoral graduates, while still ensuring an appropriate depth of fundamental research training. For instance, interdisciplinary journal clubs and seminar courses are one of the most effective formats to develop students' abilities to critically evaluate literature in their field and to prepare and deliver effective and compelling presentations of research results. Additional examples of such training activities are research internships, teaching opportunities (e.g. Graduate Certificate in College and University Teaching), and leadership and entrepreneurial training (e.g. Lens of the Market program). Ironically, these are often blanket courses (e.g. PHAR 505, Reading and Conference) or not courses at all, and are therefore not counted in the 36 didactic credit minimum requirement. It is for this reason, that the “36 credit” requirement severely limits the flexibility of graduate programs to meet the evolving needs of their graduate students, and furthermore dilutes the research training such that an extended time is needed not only to complete the didactic courses, but also to achieve the depth of relevant research training. In certain disciplines, an inflated minimum didactic credit hour requirement may not only tend to shape individual student programs of study, but also can promote the creation of additional “fluff” courses by faculty whose efforts would otherwise be focused on facilitating student training in the laboratory. Indeed, in the recent 10-year review of the Biochemistry and Biophysics doctoral program, a recommendation to minimize the number of courses required of graduate students was accompanied by the comment: “In a Ph.D. program the real learning takes place in the research laboratory. The number of required courses should be kept in check, and under no circumstances should the number of credit hours be used to give shape to programmatic requirements. This is not in the student's best interests.”

Other positive ramifications of a reduction in minimum didactic credits required for doctoral programs would be 1) a reduction of the 5-6 year average time to graduation for PhD students in several Oregon State science programs; 2) alignment with life science programs at aspirational peer institutions; 3) enhanced collaboration and student exchange/internship opportunities in national and international research collaborations.
APPENDIX:

1) Information on average time to graduation for life sciences doctoral programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Average Years to Completion (period, ending)</th>
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<tbody>
<tr>
<td>Biochemistry and Biophysics</td>
<td>5.7 (10-yr, 2015)</td>
</tr>
<tr>
<td>Environmental and Molecular Toxicology</td>
<td>5 (10-yr, 2016)</td>
</tr>
<tr>
<td>Integrative Biology</td>
<td>6 (6-yr, 2016)</td>
</tr>
<tr>
<td>Microbiology</td>
<td>5 (10-yr, 2016)</td>
</tr>
<tr>
<td>Pharmaceutical Sciences</td>
<td>5.6 (10-yr, 2016)</td>
</tr>
</tbody>
</table>

2) Course requirements of related doctoral programs at other universities

**Purdue University, Department of Medicinal Chemistry and Molecular Pharmacology**
The MCMP PhD program does not have an explicit course credit requirement. A typical MCMP plan of study would include 20 or more credit hours of actual didactic coursework (excluding seminar credits) that demonstrates broad exposure to scientific areas.

**UC San Francisco, School of Pharmacy**
27 didactic credits to be completed in year 1; oral qualifying exam has to be taken by the end of second year, by which time all core course work and elective credits must be completed.

**University of Florida, College of Pharmacy, Pharmaceutical Sciences**
Typically 27 didactic credits to be completed by the end of the second year; total research plus didactic credit minimum is 90.

**University of North Carolina, Chapel Hill, School of Pharmacy** – semesters
Between 20 to 30 didactic credits from seven courses (3 in medicinal chemistry, one course in pharmacology, one course in organic chemistry, two electives in the student’s area of specialization.

**Colorado State University, Fort Collins, Biochemistry and Molecular Biology** – semesters
Ph.D. in Biochemistry: 16 semester credits = 24 quarter credits

**University of Oregon, Department of Biology (includes Molecular Biology; Neuroscience)**
Individualized PhD programs with no specific requirement for the number of credits, including the number of "regular" courses. It depends on the background and research area for each student.

**Duke University (Molecular Genetics and Microbiology)** – semesters
First two years: Five required classes, 13 total credits
First three years: Topics in MGM, 18 credits (seems like a journal club)
Electives: 5 credits
Non-blanket credits: 18 semester credits (27 quarter credits)

**Dartmouth Medical School (Molecular and Cellular Biology)** – semesters
First year: three courses, 9 credits (core course)
Three electives: 9 credits
Journal club every semester
Non-blanket credits: 18 semester credits (27 quarter credits)