Pre-advising Meeting for Students who Make Molecules/Biomolecules
(Inorganic/Organic/Chemical Biology)

Tuesday, September 12, 2017

Individual Advising Appointments: Wednesday, September 13, 2017

Chemical Biology Area Advisor: Prof. David L. Van Vranken

Organic Area Advisor: Prof. Scott Rychnovsky

Inorganic Area Advisor: Prof. William J. Evans

**Major Requirements of the Ph.D. Program**

1. Completion of seven graduate-level courses that will support your area of research. After you join a research group, consult with your research advisor regarding your choice of courses.
2. Chemistry 200: Conduct of Research (does *not* count as one of the seven required courses)
3. Four quarters as a teaching assistant
4. Second-year examination: written (organic/chem bio) or oral/written (inorganic)
5. Advancement to candidacy examination ("orals")
6. Satisfactory completion and defense of a doctoral thesis

**To remain “in good standing” in graduate program:**

1. Earn “B” or better in all courses (a “B–” is a failing grade in the Graduate School)
   - [A single “B–” can be petitioned to count towards your degree]
2. If you obtain a B– or lower in any graduate class, consult your graduate area advisor as soon as possible so that we can consider corrective courses of action.
3. Keep your GPA above 3.1 to qualify for TA positions.
4. Enrollment in Chemistry 399 is *mandatory* for each quarter you are employed as a TA.

**Other responsibilities for synthetic students:**

1. Attend *every* organic seminar (Wednesdays at 4 PM, Rowland Hall 104) for organic and some chemical biology students, or *every* inorganic seminar (Thursdays at 3:30 PM, Rowland Hall 104) if you are an inorganic student. It is often appropriate for organic students to *also* attend inorganic seminars of interest, and vice versa.
2. Attend Departmental Colloquia, Special Lectureships (i.e., Taft Lecture, Lee Lecture, etc.), and Symposia.
3. Attend (and eventually participate in) Organic Chemistry Graduate Symposium (one Friday per month) – organic and some chemical biology students only.
4. Rotate through three different research groups to gather information and select your preferred research advisor(s) at the end of the Fall quarter. Each faculty member will make a presentation on his/her research interests in Chem 200.
Course Selection Tools – Sign Up For Courses
• The current UCI General Catalogue describes each and every course offered by the University this year. Search the internet for “UCI General Catalogue” and navigate to the School of Physical Sciences, Department of Chemistry to see the current courses.
• The UCI Web Schedule of Classes allows you to find available classes, times, locations, enrollment, etc. Google “WEBSOC” and start searching for the classes you want.
• UCI’s University Registrar controls enrollment. Google “WEBREG” to sign up for classes.
• UCI’s older Electronic Educational Environment (EEE) is being transitioned to Canvas. The hybrid system allows you to see all the classes in which you are enrolled (course web sites, grades, class location, class times, etc.) and all classes you teach.

You must sign up for 12–16 units every quarter to maintain full-time status
• 4 units for each regular class
• During fall quarter, you must take Chemistry 200: Conduct of Research #41133, 2 units only!
• Add 1 unit of Chemistry 290: Organic Seminar #41368, with STAFF (organic and chemical biology students) or Chem 290: Inorganic Seminar #41374 with STAFF (inorganic students)
• Add 1–4 units of Chemistry 399: University Teaching #41533, with Profs. Vanderwal and Potma when serving as TA
• Add 2 units of Chemistry 292: Graduate Symposium #41527, with Prof. Vanderwal (organic and chemical biology students only)
• After your first year, you still must register for 12–16 units: 2-12 units of Chem 280 (Research), 4 units of Chem 291 (Research Seminar), 1 unit of Chem 290 (Organic or Inorganic Seminar), and 1–4 units of Chem 399 (University Teaching)
Chemistry Courses Commonly Taken by Students who Make Molecules:
See the Schedule of Classes (WebSoc) for a full list of 4-unit graduate classes in the Department of Chemistry.

Fall 2016:
Chem 201 – Organic Reaction Mechanisms I (Van Vranken)
Chem 203 – Organic Spectroscopy (Dong)
Chem 215 – Inorganic Chemistry (Green)
Chem 216 – Organometallic Chemistry (Evans)
Chem 223 – Biomacromolecules (Poulos/Luptak)

Winter 2017:
Chem 202 – Organic Reaction Mechanisms II (Van Vranken)
Chem 204 – Organic Synthesis I (Rychnovsky)
Chem 217 – Physical Inorganic Chemistry (Borovik)
Chem 263 – Materials Chemistry (Law)

Spring 2017:
Chem 125 – Organic Mechanisms (Jarvo)
Chem 205 – Organic Synthesis II (Pronin)
Chem 213 – Chemical Kinetics (Smith) mostly gas-phase
Chem 218 – Metallobiochemistry (Green)
Chem 219 – Chemical Biology (Weiss)

Graduate courses in the departments of Molecular Biology & Biochemistry and Biomedical Engineering are also available for chemical biology students. If you are interested, please discuss it with Professor Van Vranken.

For a number of reasons, you could end up with more than 16 units. If you need to sign up for more than 16 units, discuss it with your advisor at the individual advising session, and we will have Tenley Dunn approve the request.
In Winter quarter 2018, add the following to make 16 units:

- 1 unit of Chemistry 290 - (Department) Seminar
- **Organic students only**: 2 units of Chemistry 292 – Graduate Symposium
- Continue to add 1–4 units of Chemistry 399 (University Teaching) during any quarter that you serve as a Teaching Assistant (for most of you, that will be for each academic quarter of year 1)

EVERY QUARTER after you join a research group (starting winter quarter), add the following to make 16 units:

- 1 unit of Chemistry 290 – (Department) Seminar
- **Organic students only**: 2 units of Chemistry 292 – Graduate Symposium
- 1–4 units of Chemistry 399 (University Teaching) during any quarter that you serve as a Teaching Assistant (for most of you, that will be each academic quarter of year 1)
- 4 units of Chemistry 291 – Research Seminar (choose appropriate section with advisor)
- 2–12 units of Chemistry 280 – Research (choose appropriate section with your advisor)

**Sample/typical coursework plans for Inorganic, Organic, and Chemical Biology students follow on the next three pages. Note that these are samples and other electives are possible. After joining a research group, students working on highly interdisciplinary projects may find that courses outside of the Department of Chemistry are best suited as electives. Such courses should be selected in consultation with the Ph.D. advisor and ultimately approved by the relevant Area Advisor.**
A Sample Chemical Biology Coursework Plan for Year 1

Fall 2017

<table>
<thead>
<tr>
<th>Units</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>4*</td>
<td>Chem 223: Biomacromolecules</td>
</tr>
<tr>
<td>4</td>
<td>Chem 201: Organic Reaction Mechanisms I</td>
</tr>
<tr>
<td>4</td>
<td>Chem 203: Organic Spectroscopy</td>
</tr>
<tr>
<td>2</td>
<td>Chem 200: Conduct of Research</td>
</tr>
<tr>
<td>1</td>
<td>Chem 290: Seminar (Wednesday organic/chem bio seminar)</td>
</tr>
<tr>
<td>2</td>
<td>Chem 292: Graduate Symposium</td>
</tr>
<tr>
<td>1</td>
<td>Chem 399: University Teaching</td>
</tr>
</tbody>
</table>

*total 18 (>16 needs approval from Tenley Dunn—readily granted)

Winter 2018

<table>
<thead>
<tr>
<th>Units</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Chem 202: Organic Mechanisms II</td>
</tr>
<tr>
<td>4</td>
<td>Chem 204: Organic Synthesis I</td>
</tr>
<tr>
<td>1</td>
<td>Chem 290: Seminar (Wednesday organic/chem bio seminar)</td>
</tr>
<tr>
<td>2</td>
<td>Chem 292: Graduate Symposium</td>
</tr>
<tr>
<td>1-3**</td>
<td>Chem 399: University Teaching</td>
</tr>
</tbody>
</table>

*total 14

Spring 2018

<table>
<thead>
<tr>
<th>Units</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>4*</td>
<td>Chem 219: Chemical Biology</td>
</tr>
<tr>
<td>4</td>
<td>Chem 218: Metallobiochemistry OR</td>
</tr>
<tr>
<td>4</td>
<td>Chem 125: Organic Mechanisms (not with 201 or 202)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-12**</td>
<td>Chem 280: Graduate Research (research, w/ your advisor)</td>
</tr>
<tr>
<td>4</td>
<td>Chem 291: Research Seminar (w/ your advisor)</td>
</tr>
<tr>
<td>1</td>
<td>Chem 290: Seminar (Wednesday organic/chem bio seminar)</td>
</tr>
<tr>
<td>2</td>
<td>Chem 292: Graduate Symposium</td>
</tr>
<tr>
<td>1**</td>
<td>Chem 399: University Teaching</td>
</tr>
</tbody>
</table>

*total 18 (>16 needs approval from Tenley Dunn—readily granted)

Some version of the plan of study above will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until you second year, it is generally not preferred, because you'll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring of your first year.

*These are considered essential classes for a chemical biology curriculum.

**Use this course to adjust the total number of units to fall within the 12-16 credits range.
### A Sample Inorganic Coursework Plan for Year 1

#### Fall 2017
- **4*** Chem 215: Inorganic Chemistry
- **4*** Chem 216: Organometallic Chemistry
- **4** Chem 201: Organic Mechanisms I -or-
- **4** Chem 203: Organic Spectroscopy –or-
- **4** Chem 231A: Fundamentals of Quantum Mechanics –or-
- **4** Chem 233: Nuclear and Radiochemistry
- **2** Chem 200: Conduct of Research
- **1** Chem 290: Inorganic Seminar
- **1** Chem 399: University Teaching
- **total** 16

#### Winter 2018
- **4*** Chem 217: Physical Inorganic Chemistry
- **4** Chem 263: Materials Chemistry
- **4** Chem 249: Analytical Spectroscopy
- **1** Chem 290: Inorganic Seminar
- **1-3‡** Chem 399: University Teaching
- **total** 14-16

#### Spring 2018
- **4*** Chem 218: Metallobiochemistry
- **4** Chem 213: Chemical Kinetics (mostly gas phase)
- **2-12** Chem 280: Graduate Research (research, w/ your advisor)
- **4** Chem 291: Research Seminar (w/ your advisor)
- **1** Chem 290: Seminar (Thursday inorganic seminar)
- **1-4‡** Chem 399: University Teaching
- **total** 16-??

This plan of study will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until your second year, it is not advisable since you’ll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking three courses during Fall and Winter quarters will free up your schedule for more research time during Spring of your first year.

**These are considered essential classes for the inorganic curriculum.**

‡ Use this course to adjust the total number of units to fall within the 12-16 credits range.
A Sample Organic Coursework Plan for Year 1

Fall 2017  
4* Chem 201: Organic Reaction Mechanisms I  
4* Chem 203: Organic Spectroscopy  
4 Chem 216: Organometallic Chemistry OR  
4 Chem 223: Biomacromolecules  
2 Chem 200: Conduct of Research  
1 Chem 290: Seminar (Wednesday organic/chem bio seminar)  
2 Chem 292: Graduate Symposium  
1 Chem 399: University Teaching  
**total 18 (>16 needs approval from Tenley Dunn—readily granted)**

Winter 2018  
4* Chem 204: Organic Synthesis I  
4 Chem 202: Organic Reaction Mechanisms II  
1 Chem 290: Seminar (Wednesday organic/chem bio seminar)  
2 Chem 292: Graduate Symposium  
3** Chem 399: University Teaching  
**total 14**

Spring 2018  
4* Chem 205: Organic Synthesis II  
4* Chem 219: Chemical Biology  
2-12** Chem 280: Graduate Research (research, w/ your advisor)  
4 Chem 291: Research Seminar (w/ your advisor)  
1 Chem 290: Seminar (Wednesday organic/chem bio seminar)  
2 Chem 292: Graduate Symposium  
1** Chem 399: University Teaching  
**total 18 (>16 needs approval from Tenley Dunn—readily granted)**

Some version of the plan of study above will allow you to finish all seven required courses in your first year of study. While it is possible to put one course off until you second year, it is generally not preferred, because you’ll want to devote as much time as possible to research in preparation for your candidacy exam. Front-loading your schedule by taking more courses during Fall and Winter quarter will free up your schedule for more research time during Spring of your first year.

*These are considered essential classes for a traditional organic curriculum.  
**Use this course to adjust the total number of units to fall within the 12-16 credits range.
**Typical Timeline for your Doctoral Study**

**Year One**

**Fall 2017**  
Coursework (2–3 four-unit courses)  
Teaching (12–18 hours/week)  
Do three short rotations in different groups (details in separate handout). Attend open group meetings and get to know senior students and postdocs from research groups of interest. Formulate a list of preferred advisors for the group selection process. Select research advisor. **Talk to your new research advisor before you consider planning a long holiday break.**  
After finals, try to spend some time in the lab! Learn where things are stored. Find background reading material on your project. Get to know your new group members and learn about their research projects.  
Final exams end the first full week of December.

**Winter 2018**  
Coursework (2–3 four-unit courses)  
Teaching (12–18 hours/week)  
Research: Get started. Meet with your research advisor. Work at your desk so that you can get to know your labmates. Read literature relevant to your project. Set up your lab bench. Train on instruments and techniques needed for your project, make starting materials, etc.

**Spring 2018**  
Coursework (1–2 four-unit courses)  
Teaching (12–18 hours/week)  
Research: Start ramping up work productivity. Define your project and background sufficiently well so that you can accomplish lots in the summer when you are done with your classes.

**Summer 2018**  
Research, research, research!

**Year Two** (Add at least one quarter of teaching in years 2–5 to fulfill the 4-quarter requirement)

**Fall 2018**  
Research, and lots of it!  
For organic students: Second Year Reports due mid-November: a written exam focused on research progress and plans. More details will be provided.

**Winter 2019**  
Research!  
For inorganic students: Second-Year Exam: A written report on your research progress will be due around the beginning of the quarter, followed by a short oral exam in front of the inorganic faculty. The goal of this exercise is to make sure you’re on track with your research program and to help you prepare for your candidacy exam in the spring.

**Spring 2019**  
Research!  
For organic students: Advancement to Candidacy Examination: Oral exam evaluated by a committed of faculty members focused equally on research progress and an original proposal. Within the context of the presentation topics, general chemistry knowledge is also tested. Includes written proposal and written research report due prior to oral exam.

**Summer 2019**  
Research!

**Years Three to Graduation**

**Fall 2019**  
For inorganic students: Advancement to Candidacy Examination: Another written report on your research progress and a written original research proposal will be due during Fall Quarter of your third year. You will be required to defend both your research and your original proposal in front of a faculty committee. The exam is a comprehensive evaluation of your chemistry knowledge.

**Winter 2020 and onward**  
Research! **At the end of every June, you submit to your thesis committee a bullet point summary of your research progress over the past year.**  
Consider post-graduation plans: postdoc, job, other?  
Attend conferences and present your research.  
Interview for postdocs/jobs, etc.  
Write and defend thesis. Go make us proud.
First-Year Course Selection Plan
(Return to Tenley Dunn by this Friday 9/15/2017)

Fall quarter

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Student Name ________________________

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Student Signature ____________________

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Date ________________________________

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Area Advisor Name ____________________

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Area Advisor Signature ________________

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Date ________________________________

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Winter quarter

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Spring quarter

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If any changes to this coursework plan arise, then the student must retrieve this form from the Chemistry Department and make the changes in consultation with the Area Advisor or, in the event that the student has already joined a research group, their Thesis Advisor. The relevant advisor must initial and date the changes that they approve.
For first-year graduate students in Chemical Biology, Inorganic Chemistry, and Organic Chemistry, there will be a series of three rotations in different research groups. As beginning graduate students, you are expected to get to know many of the different research groups, advisors, and projects in the department. Rotations in different laboratories are an important part of the process. Possible activities during each rotation could include:

1. Getting a desk in the laboratory, spending time getting to know the lab and the group members.

2. Attending the group's weekly research group meetings. Also subgroup meetings, if applicable.

3. Meeting each week with the research advisor to discuss research in the group. One way to make that meeting productive is to ask the advisor for his or her five or so most important papers, and to read and discuss a couple of papers at each week's meeting.

Students are expected to also get to know other research groups and are strongly encouraged to attend meetings of other research groups and to meet with other advisors while doing rotations.

Please indicate your top four choices for rotation labs selected from the list below. Every effort will be made to accommodate your top preferences for your rotations, but there are no guarantees.

Please submit these choices by e-mail to Professor Van Vranken (dlvanvra@uci.edu), Organic/Chemical Biology Area Graduate Advisor, no later than 5:00 pm on Wednesday, Sep 20. (Please put “FIRSTNAME LASTNAME: ROTATION CHOICES” in the subject line of the e-mail and list your choices, in order of preference, in the text of the e-mail. Also, please send using your UCI email account!). The meeting to plan the rotations will take place the next morning; therefore, if you are late in submitting your form, your choices might not be accommodated. Because this deadline is during orientation, you should seek information about groups that interest you right away. You will be able to permanently join a group, even if you did not rotate in it.

The schedule for rotations:

- **Rotation 1.** Wednesday, September 27th to Tuesday, October 21st.
- **Rotation 2.** Wednesday, October 22nd to Tuesday, November 8th.
- **Rotation 3.** Wednesday, November 9th to Thursday, November 30th.

You will submit your top three choices for thesis advisor to Professor Van Vranken by 4 PM on Friday, December 1st. Details can be found on the following page/form. If you have any questions, please do not hesitate to contact Profs. Van Vranken, Evans, or Rychnovsky.

Select rotation labs from the following choices:

<table>
<thead>
<tr>
<th>Ardo</th>
<th>Evans</th>
<th>Jarvo</th>
<th>Pronin</th>
<th>Yang</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blum</td>
<td>Gorodetsky (ChemE)</td>
<td>Liu (ChemE)</td>
<td>Rychnovsky</td>
<td></td>
</tr>
<tr>
<td>Borovik</td>
<td>Guan</td>
<td>Mobley (Pharm Sci)</td>
<td>Van Vranken</td>
<td></td>
</tr>
<tr>
<td>Dong</td>
<td>Heyduk</td>
<td>Prescher</td>
<td>Vanderwal</td>
<td></td>
</tr>
</tbody>
</table>

**If there is a group not listed above that you would like for a rotation, please contact Prof. Van Vranken.**