# Advising Information

## Division of Analytical Sciences/Materials Chemistry

An advising session for all incoming analytical and materials graduate students will take place on Friday, August 24, 2007, with Professor Lloyd Smith (Analytical) & Professor Song Jin (Materials).

Where: Room 3219, then faculty offices (Smith – 4209a; Jin – 3363a)

When: 9:00 a.m. group session; appointments as noted on schedules

How Long: Approximately 20 minutes each session.

General notes:

Each of the analytical/materials students should sign up for the following courses:

1. Chemistry 901 (Seminar – Teaching of Chemistry) – Course #**31986**
2. 920 (Analytical & Materials weekly seminars) – Course #**26438**

3a. Chemistry 993 (Analytical Independent Research) – Course #**28103**

3b. Chemistry 996 (Materials Independent Research) – Course #**29538**

***Please** turn in your completed blue schedule card to Sue Zernicke in Room 3301 as soon as possible . . . it will be used over the weekend to schedule your teaching assignment!

To: All Analytical/Material Students
9:00 – Group meeting in Room 3219
9:15 – Pictures, followed by individual advising

# ANALYTICAL SCIENCES DIVISION
## ADVISING SCHEDULE*

### FRIDAY, AUGUST 24, 2007
PROFESSOR LLOYD SMITH, ROOM 4209A

| | | | ***TENTATIVE ASSIGNMENT*** |
|---|---|---|---|
| **AM** | 9:30 | Justin Carlisle | |
| | 9:50 | Robert Cunningham | |
| | 10:10 | Renee Dalrymple | |
| | 10:30 | Adam Dunkelberger | |
| | 10:50 | Valerie Fako | |
| | 11:10 | Katherine Freeman | |
| | 11:30 | Aaron Ledvina | |
| **PM** | 11:50 | Jason Russell | |
| | 12:10 | Robert Sturm | |
| | 12:20 | Joan Widin | |
| | 12:50 | Nicole Woodards | |

* If you are absolutely unavailable at your scheduled time, please see Sue in 3301to reschedule/change your appointment time.

To: All Analytical/Material Students
9:00 – Group meeting in Room 3219
9:15 – Pictures, followed by individual advising

# MATERIALS CHEMISTRY PROGRAM

## ADVISING SCHEDULE*

### FRIDAY, AUGUST 24, 2007

PROFESSOR SONG JIN, ROOM 3363A

| | | | ***TENTATIVE ASSIGNMENT*** |
|---|---|---|---|
| **AM** | 9:30 | Anthony Breitbach | |
| | 9:50 | Skye Kain | |
| | 10:10 | Rose Ruther | |
| | 10:30 | Yi Zheng Tan | |

* If you are absolutely unavailable at your scheduled time, please see Sue in 3301to reschedule/change your appointment time.

# INFORMATION FOR FALL 2007

## *PEOPLE TO KNOW*

| **TEMPORARY ADVISORS** | **ROOM** | **PHONE** |
|---|---|---|
| **ANALYTICAL** | | |
| Lloyd Smith | 4209a | 3-2594 |

New Analytical student advising will be on
Friday, August 25, beginning at 9:00 AM., Rm. 3219.

| | | |
|---|---|---|
| **INORGANIC** | | |
| Judith Burstyn | 5327 | 2-0238 |

New Inorganic student advising will be on
Friday, August 25, beginning at 9:00 AM, Rm. 5327.
Sign up during advisory exam on Wednesday, August 23.

| | | |
|---|---|---|
| **MATERIALS** | | |
| Song Jin | 3363 | 2-1562 |

New Materials student advising will be on
Friday, August 25, at 9:00AM, Rm. 3219.

| | | |
|---|---|---|
| **ORGANIC** | | |
| Helen Blackwell | 5211a | 2-1503 |
| Steve Burke | 5317 | 2-4941 |
| Hans Reich | 8112 | 2-5794 |

New Organic student advising will be on
Friday, August 25, beginning at 10:00 AM.
A sign-up sheet will be posted outside of the Organic Office, Rm. 7121.
Please sign up by Noon on Thursday, August 24.

| | | |
|---|---|---|
| **PHYSICAL** | | |
| Gil Nathanson | 7321a | 2-8098 |

New Physical graduate students are to attend a meeting on
Friday, August 25, at 9:00 AM, Rm. 8335.
There will be a sign-up sheet for individual advising posted at Room 7321.

| | | | |
|---|---|---|---|
| CHEMISTRY DEPARTMENT CHAIR | Robert Hamers | 1130 | 2-8005 |
| CHEMISTRY ASSOCIATE CHAIR | James Weisshaar | 4211a | 2-0266 |
| EXECUTIVE DIRECTOR | Matthew Sanders | 1126 | 3-4693 |
| GENERAL CHEM COORDINATOR | Gery Essenmacher | 1328 | 3-2424 |
| DIRECTORS OF LABORATORIES | | | |
| Analytical Chemistry | Pamela Doolittle | 2303a | 2-9679 |
| | Rob McClain | 2330b | 2-5615 |
| General Chemistry | *To be determined* | 1317 | 3-4851 |
| Organic Chemistry | Nicholas Hill | B324 | 2-2306 |
| Physical Chemistry | Edwin M. Turner | B219 | 2-6533 |
| BUILDING MANAGER | Tom Foseid | 1227 | 2-8745 |
| BUSINESS OFFICE | Bob Duessler | 1125 | 2-4225 |
| | Charlene Entwistle | 1110 | 2-8746 |
| | Dianne Mitchell | 1123 | 2-1481 |
| | Pat Wermeling | 1121 | 5-9227 |
| SUPPORT STAFF | | | |
| Department | Carolyn Williams | 1128 | 2-1487 |
| | Phill Bloedow | 1121 | 2-1483 |
| | Berta Ostrander | 1120 | 2-4561 |
| | Dennis Reece | 1121 | 2-1486 |
| Graduate Office/Admissions/Careers | Mary Kay Zimmerman | 2108 | 2-0363 |
| Payroll/Benefits | Betty Harwood | 1124 | 2-5927 |
| | ?? | 1122 | 5-8974 |
| Analytical/Materials Chemistry | Susan Martin-Zernicke | 3301 | 3-4450 |
| General Chemistry | Diana Duff | 1328 | 3-2424 |
| | Debbie Hug | 1328 | 3-2424 |
| Inorganic Chemistry | Kristi Heming | 6311 | 2-6815 |
| Organic Chemistry | Kathleen Myhre | 7121 | 3-5920 |
| Physical/Theoretical Chemistry | Patricia Houtsinger | 8305g | 2-1969 |
| Duplicating | Bruce Goldade | 1146 | 2-0293 |
| Library | Sharon Mulvey | 2361f | 2-2254 |
| | Emily Wixson | 2361e | 2-4423 |
| Mail Room | Teresa Knudson | 1146 | 2-5949 |

Division of Analytical Sciences

# ANALYTICAL SCIENCES DOCTORAL REQUIREMENTS

The doctoral requirements include a series of courses, a thesis background exam, an independent research proposal, and the final Ph.D. thesis. All requirements except for the Ph.D. thesis itself (including all departmental requirements and the Graduate School minor requirement) are expected to be fulfilled by the end of the third academic year (Sept-May) of graduate study, and the Ph.D. thesis is expected to be completed by the end of the 6th year. Failure to meet these requirements on time will be considered unsatisfactory progress. Exceptions can be made in extenuating circumstances, but only with permission of the Analytical Division faculty.

## I. Coursework

Each Ph.D. student in Analytical Sciences must receive credit in Chemistry 621 (including laboratory) unless specifically excused by the Division and approved by the major professor, based on written petition by the student. In addition, each student must receive credit for any two of the following courses: Chemistry 622, 623, 624, 625, 628, and 630 (Special Topics). Chemistry 630 "Special Topics" courses can be taken more than once for credit if they are on different subjects. Many of these courses will involve reading and critically evaluating the primary scientific literature.

## II. Thesis background oral (TBO) examination

In the second year of study, all students will demonstrate that they have mastered the literature and obtained research skills needed to effectively conduct scientific research. The TBO involves a written proposal, oral presentation, and defense before a committee of faculty members. The TBO will typically evaluate the student in four key areas:

1) Knowledge of the scientific literature in the student's area of research
2) Ability to apply information learned in courses to research problems
3) Demonstrated progress to date in the student's Ph.D. thesis project
4) Demonstration of understanding of the scientific method through a coherent explanation of the objectives, goals, and proposed approach for the Ph.D. research yet to be completed.

Students must consult with their thesis adviser to determine the desired TBO topic.

**a) TBO Document:** A written document will be developed in preparation for the TBO. This document should be modeled after a standard NSF or NIH-style research proposal, including a summary of the relevant background literature, a clear statement of goals and objectives of the student's research, a discussion of research accomplished to date, and a proposal for work yet to be accomplished. A document detailing the proposal format is available from the Analytical Division Coordinator. In the written document, the student will develop the subject in detail. The research proposal should be distributed to the committee members at least seven days in advance of the seminar. It is the student's responsibility to ensure that all copying and distribution is done in a timely manner.

**b) The TBO seminar:** The TBO includes an oral presentation that will be presented publicly to all students and faculty. This may be done at the weekly analytical sciences seminar or at another time as determined by the Analytical Sciences faculty and Division Coordinator. The presentation should cover the background, progress to date and proposed research. Sufficient additional time (5-10 minutes) must be allowed for questions from the audience at the end of the seminar. Dates for each student's TBO will normally be assigned by the divisional faculty

and/or the Analytical Division Coordinator. Students are not permitted to change the date or time without permission of the division faculty.

c) **The TBO Defense:** The research seminar will be defended before a committee of faculty members subsequent to the presentation. The student is responsible for scheduling the defense, which, if possible, should be done on the same day as the presentation. The committee will be selected jointly by the student and the thesis adviser and will consist of two faculty members in addition to the thesis adviser. The student's performance will be evaluated on: (1) the student's ability to demonstrate a thorough knowledge of those aspects of chemistry and instrumentation, both theoretical and experimental, which are needed to understand and carry out the research discussed in the seminar. (2) the ability to critically analyze the relevant literature, and (3) the ability to select and design experiments to address scientific questions of relevance to the research area.

Upon completion of the oral examination, the examining committee will decide on one of three options: 1) the student passes the examination, 2) the student receives a partial pass, or 3) the student fails the examination. A "partial pass" will be given when there are some deficiencies that must be corrected before the student can be allowed to continue toward a Ph.D. A partial pass will require additional effort on the student's part to correct the deficiencies; corrective measures will be determined individually by the TBO committee. Typical remedies may involve rewriting or adding material to the document, having a second individual discussion with the faculty, and/or doing a second presentation and defense. If a student fails the examination outright, the student will not be permitted to continue toward the Ph.D. degree.

## III. Original Research Proposal

All students will present an independent research proposal. The "RP" is intended to meet the breadth requirement and must be on a topic of the student's choosing that is substantially different from the student's own thesis area. It is intended to evaluate the student's ability to learn a new area of science on an independent basis, to identify important scientific questions and form testable hypotheses, and to propose experimental or theoretical approaches to answering the questions and testing the hypotheses. The RP is similar in format to the TBO, consisting of a 8-10 page written research proposal, public presentation, and closed-door exam. Scheduling of the RP is normally done on an individual basis, but must be completed by the end of the third year unless special permission is granted.

Upon completion of the oral examination, the examining committee will decide on one of three options: 1) the student passes the examination, 2) the student receives a partial pass, or 3) the student fails the examination. A "partial pass" will be given when there are some deficiencies that must be corrected before the student can be allowed to continue toward a Ph.D. A partial pass will require additional effort on the student's part to correct the deficiencies; corrective measures will be determined individually by the TBO committee. Typical remedies may involve rewriting or adding material to the document, having a second individual discussion with the faculty, and/or doing a second presentation and defense. If a student fails the examination outright, the student will not be permitted to continue toward the Ph.D. degree.

## IV. Obtaining Dissertator Status

When requirements I, II, and III have been met, complete a ***Request for Preliminary Warrant***. Obtain this form at the Graduate Admissions Office, Room 2108.

***Effective: Spring 2007***

# Analytical Sciences/Materials Chemistry

You are responsible for meeting with at least four faculty members before trying to join a group. Some analytical faculty may give a presentation during the Thursday analytical seminars early in the semester. However, you will learn more by meeting one-on-one with the faculty and talking with their students. This is one time in your career when faculty will usually open their doors wide and take plenty of time to talk to you. Analytical, Materials and Inorganic faculty have scheduled research talks for Monday evenings starting September 10th and going through October 8th. The on-line web pages for each group may not be up-to-date and sometimes don't give a good sense of what each group is doing. We encourage you to take advantage of these Monday evening sessions . . . you will be required meet with at least four different professors at some point following these talks, with the goal of joining a research group on November 15, 2007.

Analytical is centered in the Chemistry Department, but has connections across campus. There are a number of faculty who do not have formal appointments in chemistry, but who are interested in having analytical students in their group. This is quite simple to do – you just need someone in chemistry to act as a formal contact person. Ask Professor Smith or Professor Jin if you have questions.

## HINTS for choosing an adviser and joining a research group

1) Faculty will give you a good idea of what direction their group's research is headed. Students will give you a good sense of the unique character of each group. Both are important.

2) Every group has some type of "group meeting", usually once per week. If you can schedule it, going to these group meetings is a good idea once you think you might be interested in a group. Ask the professor if you may attend.

3) Have a backup plan! Some groups may be full. Keep in mind that ultimately your success depends much more on *you* than on what group you join and who your adviser is. Try to identify second and even third choices, or look for potential collaborative opportunities between groups. There are alot of opportunities for doing research with faculty outside of chemistry as well.

4) Joining a group is a two-way street. Students need a fair chance to evaluate what groups the students want to join, and the faculty also want some time to evaluate which students are the best match for their group. When you state a preference for joining a group, don't expect a faculty member to give you a yes/no decision immediately. State your preference as early as possible, but only after you've visited multiple groups and feel you are able to make an informed choice. Everyone should be settled into a group before the Thanksgiving break at the end of November.

5) Once you join a group, throw yourself into research! (Please notify Sue whose group you have joined.) **Good luck!**

# Analytical, Inorganic, Materials Faculty Research Talks – Fall 2007
# Room 8335 Chemistry

**Monday, September 10**

5:45 Professor Frank Keutsch
6:10 Professor Bob Hamers
6:35 Pizza/Refreshments
7:00 Professor Josh Coon
7:25 Professor Mahesh Mahanthappa

**Monday, September 17**

5:45 Professor Padma Gopalan
6:10 Professor Lingjun Li
6:35 Pizza/Refreshments
7:00 Professor Shannon Stahl
7:25 Professor David Schwartz

**Monday, September 24**

5:45 Professor Mark Ediger
6:10 Professor Thomas Brunold
6:35 Pizza/Refreshments
7:00 Professor Song Jin
7:25 Professor John Berry

**Monday, October 1**

5:45 Professor Nita Sahai
6:10 Professor Jim Weisshaar
6:35 Pizza/Refreshments
7:00 Professor Clark Landis
7:25 Professor John Wright

**Monday, October 8**

5:45 Professor John Moore
6:10 Professor Judith Burstyn
6:35 Pizza/Refreshments
7:00 Professor Thomas Kuech
7:25 Professor Lloyd Smith

**Note to students:** One of the best things you can do as a new graduate student is to learn about what's going on in various faculty members' labs. The analytical, inorganic and materials faculty will be giving a series of short talks on their research. These will be held in Room 8335 beginning at 5:45 p.m. on Mondays during the first weeks of the semester. There will be four 20-minute talks and an informal supper.

This is a great chance to learn about on-going and future research directions, both inside and outside of your immediate area, and to meet faculty on an informal basis. Even if you don't plan to work for a particular professor, it is always good to know what is happening.

We hope that you will take this opportunity to learn about what's going on in the department. Analytical and Materials students will be required to meet with at least four different professors at some point following these talks, with the goal of joining a research group by November 15, 2007. A form for tracking these appointments will be distributed at the general advising session. Inorganic students must meet with a minimum of four professors – at least two during September. If you have questions, please contact your division coordinators.

# Alignment of Materials and Analytical PhD programs with guidelines for "Degree of Uniformity"

| Departmental Uniform Requirements | Analytical | Materials |
|---|---|---|
| ***Domain Knowledge***<br>(includes coursework, minor completion, or topic exams) | **Coursework:** 621; credit for two out of 622, 623, 624, 625, 628, 630; Chemistry 901; Chemistry 920 (Analytical seminar attendance); Chemistry 993 (Research)<br>**Other:** minor completion, defined by Graduate school | **Coursework:** Credit for 3 grad-level courses in materials (Chemistry 630-Hamers, Chemistry 842-McMahon, or by approval of Materials Chair); Chemistry 901; Chemistry 920 (Materials seminar attendance); Chemistry 996 (Research)<br>**Other:** minor completion, defined by Graduate School |
| ***Thesis Background Presentation***<br>(must include a written and oral component) | Thesis research proposal:<br>a. written proposal and progress report<br>b. 30-minute seminar<br>c. committee defense/examination (committee: minimum 2 faculty + advisor)<br>Normally completed by the end of the 2nd year | |
| ***Literature Evaluation*** | The literature evaluation requirement will be met by including the careful reading and analysis of current research papers in the divisional graduate courses & through preparation of the two RPs. | |
| ***Original Research Proposal***<br>(should be in an area not closely related to student's research) | Independent research proposal:<br>a. NSF style proposal outside thesis area<br>b. Approved by adviser<br>c. Includes seminar and defense<br>d. committee defense/examination (committee: minimum 2 faculty + advisor)<br>e. To be completed within 3rd year.<br>File ***Request for Preliminary Warrant*** 3 weeks prior to proposal presentation. | |
| First four stages completed (dissertator status) by end of 6th semester (3rd year) | Dissertator by end of the 6h semester (end of the 3rd year) | |
| ***Thesis Planning Meeting***<br>(specifically for students who haven't set a date for defense by the end of the 5th year) | Thesis planning meeting<br>(specifically for students who haven't set a date for defense by the end of the 5th year) | |
| ***PhD Thesis***<br>(document and defense usually completed before the end of the 6th year) | PhD Thesis<br>(document and defense usually completed before the end of the 6th year) | |

## Fall 07 Graduate Students (Analytical and Materials)

Breitbach, Anthony <abreitba@chem.wisc.edu>
Carlisle, Justin <jcarlisle@chem.wisc.edu>
Cunningham, Robert <rcunningham@chem.wisc.edu>
Dalrymple, Renee <rdalrymple@chem.wisc.edu>
Dunkelberger, Adam <adunkelberger@chem.wisc.edu>
Fako,Valerie <vfako@chem.wisc.edu>
Freeman, Katherine <kfreeman@chem.wisc.edu>
Kain, Schuyler <skain@chem.wisc.edu>
Ledvina, Aaron <aledvina@chem.wisc.edu>
Russell, Jason <jrussell@chem.wisc.edu>
Ruther, Rose <ruther@chem.wisc.edu>
Sturm, Robert <rsturm@chem.wisc.edu>
Tan, Yi Zheng <ytan@chem.wisc.edu>
Widin, Joan <jwidin@chem.wisc.edu>
Woodards, Nicole <nwoodards@chem.wisc.edu>

## Fall 07 Analytical Students

Carlisle, Justin <jcarlisle@chem.wisc.edu>
Cunningham, Robert <rcunningham@chem.wisc.edu>
Dalrymple, Renee <rdalrymple@chem.wisc.edu>
Dunkelberger, Adam <adunkelberger@chem.wisc.edu>
Fako,Valerie <vfako@chem.wisc.edu>
Freeman, Katherine <kfreeman@chem.wisc.edu>
Ledvina, Aaron <aledvina@chem.wisc.edu>
Russell, Jason <jrussell@chem.wisc.edu>
Sturm, Robert <rsturm@chem.wisc.edu>
Widin, Joan <jwidin@chem.wisc.edu>
Woodards, Nicole <nwoodards@chem.wisc.edu>

## Fall 07 Materials Students

Breitbach, Anthony <abreitba@chem.wisc.edu>
Kain, Schuyler <skain@chem.wisc.edu>
Ruther, Rose <ruther@chem.wisc.edu>
Tan, Yi Zheng <ytan@chem.wisc.edu>