Department of Chemistry
Wright State University

Graduate Student Handbook

2016

CHEMISTRY DEPARTMENT GRADUATE STUDENT HANDBOOK

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A. PRACTICAL MATTERS

A-1. Welcome and Overview

Welcome to the Graduate Program in the Chemistry Department! As faculty members, we look forward to working with you as you continue your education in Chemistry. You will find the graduate education experience an interesting and exciting transition from student to independent scientist. Graduate students begin this program by taking courses in Chemistry very much as they did as undergraduates; upon the completion of this program, they present a thesis describing their own research, which contributes to the body of new knowledge in chemistry. Actually, the progress is not the simple progression that the foregoing statement might imply. This program takes approximately two years of hard work, and while you are taking courses, usually you will be serving as a teaching assistant for undergraduate courses. The experience and knowledge you obtain in this program will remain with you always. A productive chemist never loses the attitude of an inquiring student.

This handbook is meant to introduce you to those parts of the graduate education process that can be described on paper. Your temporary advisor and all members of the Chemistry Graduate Studies Committee (CGSC), particularly the Chair, are available to you for advice or questions on matters not covered in this handbook. However, advice and assistance are not limited to the CGSC. You will find the entire faculty, your fellow graduate students, and all of the supporting staff in the department available to answer questions and to help.

A-2. Orientation

Orientation workshops are offered for new GTAs through the Center for Teaching and Learning (CTL) in the week before Fall classes start. In general, these workshops can be taken online for U.S. students but involve approximately three days for International GTAs (the latter should see http://www.wright.edu/cola/Dept/ENG/ESL). In addition, the chemistry department provides an orientation program for new graduates and undergraduates who will be teaching in laboratories in the Fall. The orientation is part of CHM 7000 (Principles of Instruction in Chemistry) and is designed to improve the teaching abilities of graduate students and allow academic credit for the experience. All graduate teaching assistants are required to enroll in CHM 7000 during their first semester in residence at the university. Many incoming GTAs will arrive in the summer semester (under the Early Start program) and will take CHM 7000 then. Topics to be covered in CHM 7000 are laboratory safety practices, educational theory and the techniques and uses of instructional materials. A portion of the credit for CHM 7000 is based upon in-class experience, accompanied by regular meetings with faculty supervisors.

A-3. Early Start and Tuition Waivers

A-3 (a.) Early Start

The usual start date when completing the application to the Graduate School is for Fall semester. However, if you are accepted as an Early Start student, you will need to change your start date with the Graduate School to summer semester as soon as possible, by either visiting their office (E344 Student Union) or through the mail. **Note: Do not update your application with the**

Graduate School online or you will be charged a new application fee. It is your responsibility to update your application start date with the Graduate School and any delay in doing so may impede your registration, fee waiver and/or first pay check.

A-3 (b.) Tuition Waivers

This message is directed to Chemistry MS Students with Tuition Waivers (those on GTA contracts and Graduate Council Scholars):

Each term, in which you have a tuition waiver, you must notify Gwana Pontsler in the Graduate School when you have completed your registration process (totaling 15 credits). This notification, which is generated by you, initiates the process whereby the tuition waiver is activated. If you fail to notify the Graduate School your fees may go unpaid or your student loan account may be tapped for the tuition payment. Each of these two scenarios has occurred to Chemistry GTAs in previous academic years.

The following paragraph is a portion of Ms. Pontsler's response to an inquiry about two unfortunate events.

"I clearly express to each student that they need to let me know when their registration is complete for each term. This is done at the initial signing of the contract and I try to express just how important this is. The application of tuition fees is not an automatic process, either Carolyn or myself, must manually pull each student's file (we have about 600) and apply the tuition. I try to insist that each student take a pro-active role in getting their own fees paid by letting me know as soon as they have registered. By doing that we can avoid late fees and dropped classes."

Please carry out this notification process when you register for all remaining terms while in the MS program. Even if you never have been snared by omitting this process in the past, there is now no excuse for failing to notify the Graduate School as requested in the future.

A-4. Stipend, Vacations and Outside Employment

Graduate Teaching Assistantships (GTAs) comprise a full (three semester) tuition scholarship and an amount to assist the student with living expenses. Academic year GTAs provide support for nine months beginning in August (at the start of Fall semester). Summer semester support is ***usually*** available for students in good academic standing, though the actual amount may be reduced somewhat depending on the number of students competing for funds.

After an offer for a GTA has been made and accepted, you will need to sign a contract with the Graduate School. The Graduate School will notify you by mail of the date and time of your appointment to sign your contract. Depending on when you start, you may have to sign more than one contract (Early Start students will sign two separate contracts, one for summer and one for the new academic year). Additionally, if you plan to participate in the “early start” program, please ensure that you register for summer entry. It is the intent of the department to provide financial support during six semesters of graduate work (including summers) – for a total of two academic years.

The policy regarding vacation time is somewhat difficult to describe since being a graduate student is not a clock-punching activity, any more than it is for a faculty member. You may find evenings, weekends and the quiet interludes during some of the regular undergraduate holidays provide some of the best research times of the entire year. However, the departmental policy is that graduate students who are on full-time GTAs are entitled to a **total** vacation time of **two weeks** during the **academic** year. Vacation during the summer sessions is more variable and will be as agreed upon with your advisor. Implementation of the policy is left to the individual, but the guideline is there should any questions arise. Please note that teaching duties frequently extend into both the beginning and end of undergraduate holidays, so be sure to check with your teaching supervisors before planning a vacation.

Occasionally, the question of outside employment arises. The departmental policy is that graduate students should not accept outside employment without the explicit prior approval of the CGSC. It is the department's view that graduate study is a full-time occupation. Outside employment will reduce the time a student can devote to graduate study. Since there is a limit to the length of time that support is provided, one can question the wisdom of accepting an outside job. On the other hand, there may be circumstances when outside employment would enhance a student's professional growth. At any rate, the CGSC will rarely approve more than 10 hours / week of outside employment.

A-5. Student Technology Assistance Center (STAC)

The STAC is an innovative facility that provides individual support and instruction to Wright State University students on a vast variety of computer programs. In the STAC, students can create original works using either Windows or Macintosh computers, and the latest multimedia software, obtain assistance with PDF creation and editing, creating presentations, web-design, scanning, imaging, and much more. Some of the software utilized: Acrobat, Dream Weaver, Photoshop, PowerPoint, and others.

The STAC employs trained student mentors who share a wealth of technical experience and creativity. In a unique peer-to-peer learning environment, these knowledgeable mentors are always available to assist students with their projects and curiosity.

The hours of operation during the summer semester are Monday – Thursday 10:00 a.m. to 9:00 p.m., Friday 10:00 a.m. – 5:00 p.m., and Saturday – Sunday Closed. The hours of operation during the academic year are Monday – Thursday 8:00 a.m. to 11:00 p.m., Friday 8:00 a.m. – 5:00 p.m., Saturday 10:00 a.m. to 5:00 p.m., and Sunday 1:00 p.m. to 10:00 p.m. They are located in the Dunbar Library on the second floor. You may contact Will Davis, STAC Coordinator with any questions or concerns at 937-775-2656, or online at http://guides.libraries.wright.edu/stac/.

A-6. Obtaining a Key for Labs and Departmental Card-Swipe Lock Access

To obtain a key for your lab and/or teaching lab:

1. Obtain a key request form from one of the Chemistry Department's main office staff members, 202 Oelman Hall, and then obtain proper signatures.
2. All key requests must be presented to the Customer Service Center, 065 Allyn Hall, prior to paying a deposit.

3. If the key request document is properly authorized, the Customer Service Center will have the key(s) produced. The Customer Service Center will call you when your key is ready for pick-up, ***usually*** within 3 working days of the request.
4. A key deposit is required, for each key requested by the graduate student. The Customer Service Center prepares a key deposit form indicating the deposit amount based on the number of keys required.

    - The requestor must present the key deposit form to the Bursar (E236 Student Union) and pay the specified deposit.
    - The Bursar stamps the form and attaches a receipt to the form.
    - The requestor returns to the Customer Service Center with personal identification to obtain the keys.
    - The Customer Service Center retains the key deposit form and the receipt for deposit refund.

Any further questions regarding keys can be accessed through the web at http://www.wright.edu/admin/physplant.

To obtain access to a room locked with a swipe-card lock:

1. You should fill in the form available in the department office, have it approved by your adviser (including temporary) and return the form to Dr. Grossie, who will arrange to activate the lock.

A-7. Wright One I.D. Card

If you are a valid Wright State student, go to the Wright1 center, E234 Student Union, between 8:30 a.m. and 5 p.m. Monday through Friday. If this is your first term at Wright State, you must bring your class schedule and a photo ID.

Your first Wright1 card is free of charge; however, you will be charged a $15.00 replacement fee for lost, damaged, or stolen cards.

A-7 (a). What you can do with your Wright One Card:

Your Wright1 card also serves as a pre-paid debit card, library card, meal card (for on campus residents), and an access card for recreation facilities, parking lots, and certain labs on campus.

University ID: Issued to any new student, faculty, or staff member at WSU. Wright1 cards are also available for purchase by any affiliate, alumni, or contractor associated with WSU.

Dining Dollar$: On campus residents that live in Hamilton Hall, The Woods, or The Honors Dorm are required to purchase a semester meal plan (Dining Dollar$) that can be spent only in on-campus food service locations, excluding vending machines. Unused Dining Dollar$ will roll over from semester to semester until the end of Spring semester, at which time any unused Dining Dollar$ will be remitted to the University.

Bonus Dining Dollar$: These are similar to Dining Dollar$. They can only be used in on-campus food service locations excluding vending machines. However, anyone can purchase Bonus Dining Dollar$. When you purchase Bonus Dining Dollar$, the University will add either 5 or 7 percent to your Bonus Dining Dollar$ account depending upon the dollar value or plan purchased. Unused Bonus Dining Dollar$ roll over from semester to semester and Bonus Dining Dollar$ are **never** remitted to the university. Bonus Dining Dollar$ will stay on your Wright1 card until you spend them or until you leave the University and request a refund.

Flex Dollar$: Are accepted anywhere on or off campus that the Wright1 card is accepted. Flex Dollar$ roll over from semester to semester and are never remitted to the University. Flex Dollar$ will stay on your account until you spend them or leave the University and request a refund.

Library Card: Your Wright1 Card can be used to check out books or media from the Dunbar and Fordham libraries. Just present your Wright1 Card to the circulation desk, along with the items you want to check out. The length of borrowing time depends on your status and type of card. For more information, visit libraries.wright.edu.

Door Access: Your Wright1 card also gives you access to certain doors on campus, depending on your status and classes that you are taking.

Recreation: Your Wright1 card also gives you access to the Student Union Fitness Center and the Nutter Center fitness facilities. Students living on campus will also have access to the fitness center located in the Honors Dorm. Access is granted to currently registered students, WSU faculty and staff, affiliates, and alumni who have purchased a membership with the Alumni Association.

A-8. Code of Conduct

All Graduate Teaching Assistants and Graduate Research Assistants are expected to behave ethically in all of their endeavors associated with the chemistry department. Guidelines, especially for the conduct of research, can be viewed at onlineethics.com (mainly for Engineering, but valuable nonetheless) and through the American Chemical Society Committee on Ethics.

All Graduate Teaching Assistants and Graduate Research Assistants must abide by Wright State University policy regarding codes of conduct. According to Wright Way Policies and Procedures 4009.1 the general policy states:

Wright State University will not tolerate sexual assault of any kind. The term sexual assault is a general term that includes a variety of actions against any person without the person's consent, against the person's will, or under force, threat of force, or coercion. Consent cannot be given while intoxicated or medicated since these states inhibit an aware state of mind.

The Ohio Revised Code, Chapter 2907, defines sexual assault as: rape; sexual battery; unlawful sexual conduct with a minor; corruption of a minor; gross sexual imposition; sexual imposition; importuning;

voyeurism and public indecency; or, any unwanted touching or act that is non-consensual and committed by the offender for the purpose of sexual gratification.

Future revisions, amendments, or additions to these or other applicable codes are incorporated in this policy by this reference. Sexual assaults of any kind are criminal offenses and are subject to criminal charges in the state of Ohio.

These violations of state law are also violations of the Wright State University Code of Student Conduct and may be adjudicated through the university's student judicial system. Certain types of these offenses, including rape, sexual battery, and gross sexual imposition, may trigger a mandatory Ohio Board of Regents academic dismissal hearing pursuant to Ohio Revised Code 3345.23.

Furthermore, the Wright State University Code of Student Conduct defines sexual assault as "any attempt or actual unwanted sexual contact, physical or nonphysical, in the absence of clear and voluntary consent. Clear and voluntary consent is consent that is given freely and actively in mutually agreed upon sexual activity. Consent is not clear or voluntary if it results from the use of physical force, threats, intimidation, or coercion. It is a violation of policy to have sex or sexual contact with someone who is known to be, or should be known to be incapable of making a rational, reasonable decision."

Any questions regarding policy and procedures can be accessed through the Wright State website at http://www.wright.edu/wrightway.

A-9. Travel Policy (see Form D-8 for Pre- and Post –Travel Checklist)

Presentation of research results at Local, Regional and National meetings is an integral part of the education of graduate students. These presentations offer unique opportunities for sharing and discussion of research results as well as networking and job interviews. The department of chemistry considers a trip to a scientific meeting to be an earned privilege, not a right. Students who attend meetings, whether presenting or not, are considered to be representatives of Wright State University and should act accordingly.

- Chemistry Department travel funds are available for partial support of travel expenses incurred by graduate Chemistry Majors attending meetings. To be eligible, applicants must have departmental and advisor approval and be presenting a poster or talk on behalf of the Chemistry Department.

- The Chemistry Department requires the student to 1) present his/her paper/poster at the conference, 2) to attend related professional sessions and 3) to attend and participate in the career fair offerings at the conference.

- A student is eligible for a maximum of one award during a fiscal (July 1 – June 30) year. Multiple travel requests and travel by students not presenting will be at the discretion of the Chair, unless the student's advisor is paying for the trip.

- Once a student submits the abstract of their presentation, they must come to the chemistry office to pick up a Travel Authorization Form. This form must be completed and returned to the office

within one week. Once the abstract has been accepted, a copy of the acceptance email must be supplied to the office for attachment to the student's travel form. The office staff will then process the travel form. The student will be notified via email of their approved travel status, at which time the student can start making travel arrangements.

- Students applying for departmental travel funds must request additional funds from the College of Science and Math special activities fund and from their faculty advisor. Application forms for Travel and COSM funds are available in the Chemistry Department office. By completing and signing the request forms the student is committing, unless an emergency arises, to the travel dates and times indicated on the form. Any deviation will be at the student's expense.

- The student is responsible for finding accommodations in the conference city. This may be done in one of three ways. 1) Each research group may collectively find rooms, 2) all students attending may find one hotel with several rooms being reserved, or 3) individual students may find a room. The students are responsible for providing all hotel stay information to the office staff and an explanation as to how the payment will be split. The department will then book the hotel on the department credit card. Normally, each student will be expected to share a room with 2 - 3 other WSU chemistry students on the same trip. Hotel accommodations will be reimbursed only from the day before the conference to the day after the conference. Students wishing to go earlier or stay extra days will be responsible for the hotel costs.

- The student will be responsible for making all air travel reservations as well as to pay for the registration fee for the conference. If a student chooses to fly out earlier than the day before the conference begins or come home later then when it ends, comparison flight costs must be submitted with travel forms. These expenses will then be reimbursed providing there is enough money from the amount contributed by the Chemistry Department and CoSM.

- Upon completion of travel, each student will give to the office staff receipts for their flight, hotel, and registration fee, plus any parking lot fees. If the student drove to the airport a mapquest map with directions from where the student left from and returned to needs to be provided. A copy of the program book or a badge needs to be brought also to show that the student was in attendance.

- Expenses eligible for reimbursement may include: (in order) 1) approved airfare/mileage, 2) hotel (incidental expenses excluded), 3) registration, 4) meals, 5) miscellaneous (parking, cab fare, airport shuttle, etc.). The contribution from the Chemistry department, advisor and CoSM will be calculated and applied towards the total of the trip for possible reimbursement.

B. ACADEMIC MATTERS

In order to qualify for the Master of Science Degree, the candidate must fulfill the requirements of the Graduate School, complete 14 credit hours of course work and a minimum of 12 credit hours of thesis research, submit an acceptable thesis, and pass an oral examination upon this thesis. Additionally, usually in the second year, the candidate must present a seminar to the department on a topic *not directly* related to that of his / her thesis research.

The student's academic progress will be monitored annually by the Chemistry Graduate Studies Committee (CGSC) as well as by the Graduate School [each semester]. Continuation in the program is always contingent upon satisfactory performance in research, teaching and course-work. In order to remain in good academic standing, the student must maintain a grade point average of at least 3.0. Note: a maximum of 6 credit hours of "C" grades is permissible.

Annual Progress Review For Full-Time M.S. Students: As part of the monitoring of student progress there will be a progress review with your thesis committee at the end of your first year in the program. This will consist of monitoring progress in terms of course work, teaching, and initial work on a thesis project. The committee will provide immediate feedback and send a report to the graduate studies committee (see D-7 for the form used). **It is the student's duty to insure that this review is held at an appropriate juncture.**

Formal degree requirements and course descriptions are available online at http://www.wright.edu/academics/catalog/grad. The course requirements are given below in some detail to assist both the student and faculty member in constructing a well-rounded program for each student.

B-1. Credit Hours Needed

B-1. (a) Course Hour Requirements

1. A minimum of 14 semester hours of formal graduate course work (6000 level or greater) including core course requirements.

2. 12 Semester hours of graded thesis research (CHM 8980) [a maximum of 4 credit hours / semester]. Most students on GTA/GRA support will exceed this number of research credits in their completion of a thesis, and the additional credit hours of research (beyond the 12 required credits) should be made up with CHM 8970 (pass / fail). Please note that each faculty member has an assigned section of CHM 8980 (and 8970) and the student should sign up for the section appropriate to his or her temporary or permanent advisor.

3. One semester credit hour of Seminar (CHM 8000) during the program. However, it is expected that students with department support will sign up for CHM 8000 in every semester that it is offered during their tenure in the program. In the case of a scheduling conflict (work, teaching, *etc*.), the student must petition the CGSC for an exemption from attendance. It is a requirement, even for **part-time students**, to register for CHM 8000 in the semester during which the student will present his or her seminar.

4. One semester credit hour of Research Perspectives in Chemistry (CHM 7020) in the first Fall Semester. Students not receiving departmental financial support are invited to attend but are not required to enroll.

5. A minimum of one semester credit of CHM 6900, Critical Literature Analysis

6. GTA students are required to register for 1 hour of Principles of Instruction in Chemistry (CHM 7000) the first semester it is offered after they begin their GTA duty. Topics related to safety,

teaching techniques, and laboratory preparations are developed to assist students with their TA duties. These topics are intended to both enrich the student's professional growth and to enhance TA performance. "Early Start" graduate students are required to take a more intensive CHM 7000 course during their first summer semester in residence. The credit hours for CHM 7000 do not apply towards fulfillment of the formal course requirement (see point #1 above).
Usually in the 2nd year, students should take Turning Research into a Thesis (CHM 7010).

7. A normal course load is two to three classroom courses (about 6 credit hours) in addition to research credits and courses such as CHM 6900, 7000, 7010, 7020, 8000. Enrollment in a minimum of 6 credit hours is required in any semester in which the student holds a GTA contract.

8. A minimum of 30 graduate semester hours is required for graduation.

B-1. (b) Transfer Credit

A student who has taken graduate work in chemistry at another U.S. university, but who has not earned a graduate degree from that university, may request transfer credit of up to 8 semester hours towards his / her graduate program in chemistry at WSU. The CGSC will review all such requests and will then forward all those approved to the Graduate School for final action based on compliance with Graduate School policy. Generally, transfer students must complete at least one course from each of the designated 4 core areas at WSU and any other courses deemed necessary by the research advisor. The minimum number of credit hours which must be completed at WSU for the M.S. degree in chemistry is 22, including 12 for thesis research.

B-2. Courses

Course work is regarded as an important component of an educational experience which focuses on the preparation of a thesis and, most importantly, on the research leading to that thesis. In keeping with this philosophy, course work should be selected on a very individual basis, with the aim of supporting a developing research capability. However, since the topic of your graduate thesis is not likely to be the area of your life's work, the selection of courses outside your central field of interest will serve to enhance your flexibility and ability to grow as a chemist.

Initial course selections will be made in consultation with your assigned temporary advisor, and will be based on each student's interests. A program of study, outlining courses taken and expected to be taken during a student's tenure, should be submitted to the CGSC and the Graduate School before the end of the 1st semester in the chemistry M.S. program. Students entering via the Early Start program are expected to complete this requirement before the end of their first Fall semester.

Some students are admitted to our program with undergraduate deficiencies. The latter, with an appropriate remedy, will be stated on the acceptance letter that you received initially from the chair of the graduate studies committee. It is *imperative* that these deficiencies be taken care of at the first possible opportunity (invariably during the first year). Any student who does not do so may forfeit his / her GTA award.

B-2. (a) Core Course Requirements

Four core areas have been designated. Each M.S. chemistry candidate must take at least one course from each of these (the other courses required to make up the 14 credit minimum can be taken from any of the core areas). Acceptable core courses are listed below. No substitution will be allowed.

Physical Chemistry	7510, 7520	
Inorganic Chemistry	7200, 7210	
Organic Chemistry	7440, 7460, 7480, 6610, 6650	
Analytical Chemistry	6370, 7620, 7630	

Acceptance of graduate credits from departments other than chemistry requires approval by the CGSC in advance of enrollment.

B-2. (b) Registration for "Early-Start Students"

Summer Registration Requirements

A partial schedule for summer Early Start students is presented below. Students will be contacted by the Chemistry Graduate Studies Committee in advance of the summer 2013 term with a more complete proposed schedule.

International Students		U.S. Students
ENG 1010-4cr	(may not be offered – see below)	N/A
CHM 7000-1cr	Principles of Instruction in Chemistry	CHM 7000-1cr
CHM 8960-?cr	Early Start Research	CHM 8960-?cr
CHM xxxx-2-3cr		CHM xxxx-2-3cr
CHM yyyy-2-3cr		CHM yyyy-2-3cr

Early Start students will register for a total of 15 credit hours, including CHM 7000 for 1 credit and at least one graduate chemistry course (preferably 2 or 3). International GTAs and those for whom English is not their first language must take the Oral Proficiency Test (OPT). Please contact Robert Rubin in the English Dept. at (937) 775-3756. Before he can make an appointment for the OPT, Mr. Rubin will contact the GTA supervisor to confirm that the student is being considered for an assistantship. The OPT is typically offered as part of the international workshop the week prior to classes in the Fall semester (more details can be found at: http://www.wright.edu/cola/Dept/ENG/ESL. During the Spring semester, individual OPTs may be scheduled after confirmation from the department that the student is being considered for a GTA. Again, contact Robert Rubin in the English Dept. at (937) 775-3756. He will contact the GTA supervisor for confirmation and then send the student on OPT appointment time. A newly arriving student may register for ENG 1010, which is offered in the fall and spring semesters to work on his or her speaking skills. If a student arrives at the start of the summer semester the Department **may**

pay for the LEAP Intensive English program (LEP-003, Speaking and Listening. In such circumstances, please see the chair of the graduate studies committee). Students who do not pass the OPT will be required to retake ENG 1010. A student who does not pass the OPT will be penalized by receiving a lower GTA stipend until they pass the OPT. A student who does not pass the OPT by the second offering of the test following his/her initial enrollment; will not receive a GTA assistantship past the Spring semester. A category 1 score on the OPT will allow the GTA to proceed without further assistance from the English department. A category 2 score requires the GTA to also take and pass ENG 1050 in the same semester they are teaching.

All Early Start students will register for at least two (2) credits of CHM 8960; however, the exact number of extra credits will depend on the total needed to reach 15 credit hours.

In order to register for Summer Semester courses, the procedure is as follows:

a. Select the courses you will take, in consultation with your temporary advisor.

b. Go to the Registrar's Office in E244 Student Union or go online and register for the courses.

c. Schedule an appointment with the Chemistry Dept. to complete an I-9 form prior to signing your contract. You will need this form with you when you sign your contract.

d. When you are informed that your contract is ready, make an appointment with the Graduate School Office in E344 Student Union to sign your contract. Make sure to bring your I-9 form with you. If you do not hear about your contract in a reasonable time, it is worth checking with the Graduate School to see if there has been a problem.

As a condition of receiving your summer stipend, you are expected to perform at least 20 hrs/week of research with your temporary advisor. This assignment does not obligate you to select your temporary advisor as your thesis advisor. In the first Fall or Spring Semester you should select the faculty member with whom you wish to do your thesis research. To aid you in this process, we require you to take CHM 7020 (Research Perspectives) in the Fall semester of your first year. In this course, once a week (usually on a Friday morning), two faculty members will present details of their research endeavors. After these presentations, we encourage you to meet with 1 or 2 faculty members regarding available research projects. Additionally, it can be helpful to talk to a second year graduate student who works in the laboratory of your prospective advisor. Preferably, by the end of the Fall semester you should fill in an advisor selection form (D-4) and submit it to the CGSC. Additionally, as mentioned previously, you should complete a Program of Study form in conjunction with your advisor (D-5).

You will be assigned a mailbox in the Chemistry Department main office. You should check it daily for important announcements. The office is normally open from 8:30-5:00 p.m., Monday - Friday.

B-2. (c) Academic Year Requirements

Fall Semester (for GTAs) 1st Year		Spring Semester (for GTAs) 1st Year	
Three approved courses	6-8	Three approved courses	6-8
CHM 8000 Seminar	1	CHM 8000 Seminar	1
CHM 7020 Research Perspectives	1	CHM 8980	2
CHM 7000 Intro. Teaching (7000)	1		
CHM 6880-21 Safety Course	1		
Credits	10 - 12	Credits	9 - 11

***** CHM 6880-21 is a safety course that is required of all GTA supported students. CHM 7000 (Intro. to teaching), CHM 7010 (Turning research into a thesis), CHM 7020 (Research perspectives), and CHM 6880-21 credits do not apply toward the 30 semester credits required for the MS Chemistry degree.

***** Students with GTA appointments must register for 1 credit of CHM 8000 and attend department seminars in each of the fall and spring semesters. Otherwise only 1 credit of CHM 8000 is a requirement for the Chemistry MS degree, and ideally the student should present their required department seminar during the term in which the CHM 8000 registration occurs.

The current course descriptions, as well as the typical semester in which they are offered, can be found here (please note that 5000 level courses do not count toward the degree requirements).

https://science-math.wright.edu/chemistry/programs/chemistry-course-descriptions

Note: International students will take ENG 1010 *or* ENG 1050 in the Fall Semester, 1st Year, if the student did not pass the OPT in the summer or arrived for the first time in the Fall Semester.

During regular semesters and summers, the actual number of credits for which a student should register is determined by which classroom courses a student has yet to complete in their program and how many remaining research credits are needed to distribute a total of 12 credits of CHM 8980 over the remaining academic terms. Students serving as GTAs must enroll for a minimum of 6 credits to hold a Graduate Tuition Scholarship, GTS, with their GTA appointment; however, students should register for more than 6 credits only if necessary to meet degree requirements. The example shown below is for the case in which a student will graduate in the spring semester, needs to complete one core course and one elective course in the fall semester and needs to complete CHM 6900 and a total of 4cr of CHM 8980 in the 2nd year.

Fall Semester example (for GTAs) 2nd Year		Spring Semester example (for GTAs) 2nd Year	
Seminar (8000)	1	Thesis (8990)	2
Research into Thesis (7010)	1	Seminar (8000)	1
Core and Elective Courses	4	Research (8970)	1
Research (8980)	2	Research (8980)	2
Crit. Lit. Analysis (6900)	1		
Safety Course (6880-21)	1		
Credits	10	Credits	6

A typical second-year GTA's course schedule would include options for CHM 7010 (Turning Your Research into a Thesis) in the fall semester and CHM 8990 (Thesis) in the spring semester in addition to research credits (CHM 8970/8980) – to total a minimum of 6 credits each term. CHM8970 credits are used only when necessary to reach the minimum 6 credits. Students should enroll in CHM 8990 (Thesis) in the term in which they expect to defend their thesis, and they must register for graduation with the Registrar no later than 5pm on Friday of the 2nd week of the term.

B-3. Teaching

B-3. (a) Benefits of Being a Graduate Teaching Assistant

For many of you, the position of graduate teaching assistant at WSU may well be your first exposure to teaching. While the personal satisfaction and enjoyment derived from teaching may not strike you immediately, you will benefit from the knowledge acquired in the communication of fundamental principles of chemistry to beginning students. Undergraduates benefit from the presence of graduate teaching assistants in several ways. First, since there simply is not enough faculty time available to give undergraduates the individual attention they need and deserve, the accessibility of graduate students allows expanded opportunities for student contact. Equally important, however, is the fact that graduate students, still close to their own undergraduate experience, frequently are uniquely effective in helping students learn techniques of problem solving and laboratory skills. Finally, graduate students serve as important role models for undergraduates planning to go on in chemistry.

Students on a full-time GTA are required to devote up to 20 hours per week to teaching. In an organic course, for example, this might involve two three-hour laboratories each week, plus the time spent in preparation, office hours, grading laboratory notebooks and meeting with students. Additionally, GTAs for the freshman courses will normally be asked to help in monitoring and grading freshman examinations as part of their normal duties. Further, all GTA's may find that they are assigned help room (110 Fawcett Hall) hours or extra grading help hours in addition to their lab teaching assignments.

B-3 (b) Posing and Answering Questions

As a chemistry teaching assistant, you will be asked questions in class and often you will pose further questions in response. To help ensure that these are valuable learning experiences for your students, the following suggestions may be helpful:

- Try to avoid embarrassing students in front of peers. If a student seems embarrassed, do not force the person to answer a question; recognize a partial correct answer; consider answering the question in private. Never ridicule a response since this will discourage other students from asking questions.

- When a student asks a question, find out how many other students have the same question.

- If a large number of students have the same question, consider the following:
  - review the material
  - assign an exercise to provide practice in answering the question

- If only a few students want the question answered, consider:
  - speaking to the student (or group of students) after class
  - tutoring the student(s)
  - providing remedial exercises, help sessions, etc.

- In answering a student's question, do not tell him/her more than he/she wants to know.

- If the question asked by a student is important for future learning (e.g., a prerequisite), the instructor should answer the question immediately.

- If a student's question indicates that she/he has not learned material previously covered, consider working with him/her after class.

- If a student asks a question the instructor cannot answer:
  - avoid bluffing an answer
  - tell the student you will look up the answer and tell him/her next class and <u>follow through.</u>

B-3. (c) Testing and Evaluation

Tests constructed by a novice instructor often are not balanced. Sometimes they fail to test the ability of students to understand concepts, apply principles, analyze situations, or evaluate ideas. Sometimes they stress application, analysis and synthesis at levels beyond the grasp of the student. This section will provide you with information to develop test items, which will measure learning outcomes and to interpret these results fairly in evaluating student progress.

<u>Guidelines for Preparing Tests</u>

Preparing a quiz or test requires a great deal of time and effort. The following set of guidelines is suggested to provide for a more systematic and thorough process of test preparation.

1. Tests or quizzes should be based on the objectives of the topic or unit in question.

2. The test or quiz should adequately sample the content involved. You should be careful to insure that the major topics studied are also evaluated. Also, be careful not to make the test too long. Content should be tested in proportion to the degree to which it was emphasized in lectures, labs or recitations.

3. The test or quiz should be balanced in terms of the cognitive level of response required by the student. In addition to knowledge-based questions, there should be questions, which test understanding and thinking.

4. The type of test item question used should be a function of what is being measured. A wide variety of question types are available to the chemistry teacher, including problems, essay questions, short answer, multiple choice, true/false, completion and matching. The first three items do a better job of measuring the student's ability to analyze and apply, and should be considered when these kinds of goals are important. These types of questions are generally time consuming, and tend to limit the amount of content to be sampled in the test. Completion, true/false and multiple choice items are useful for coverage of more content, albeit at the lower cognitive categories. With these points in mind, the teacher should be able to select the appropriate categories of test items.

5. Test results should be used to provide information on the strengths and weaknesses of the program by assessing the achievement of students. An item analysis of test results will help identify those areas of the program where large numbers of students are having difficulties.

6. A broad evaluation is likely to create a broader motivation for learning. Teachers tend to stress what they can evaluate and, conversely, de-emphasize those instructional outcomes that are difficult to evaluate. Students tend to spend their time and energy primarily on the instructional elements on which they are sure to be evaluated. Instructors should use these facts to their advantage. If you really are interested in students coming out of your course with laboratory skills for example, then you should be assessing these skills and including this assessment in the overall course evaluation. Notifying students at the beginning of the semester that they are to be evaluated on laboratory skills will motivate them to do well in this area. However, if the instructor considers this to be unimportant, the students will also.

B-3. (d) Ways to Tutor

Introduction

Chemistry teaching assistants typically spend a high proportion of time teaching students in one-to-one situations. Tutoring skills are not limited to out-of-class hours. Chemistry teaching assistants tutor individuals prior to and immediately after recitation classes, and throughout each laboratory period. The ability to deal effectively with these tutorial situations is essential to your success as a teaching assistant.

A prime role of any teaching assistant is to help insure that as many students as possible will attain the instructional objectives of the course. Stated differently, the TA must assume some of the responsibility for the success or failure of students. To decide if a student is having difficulty in achieving instructional goals, a rapport must be established between the student and teaching assistant, whereby the student will feel comfortable about getting help. The quality of the help you can provide to your students will be a function of the care that you take in following a few steps designed to increase the likelihood of success of the tutoring experience.

A chemistry GTA is not allowed to tutor, for pay, any student enrolled in the course, regardless of whether or not they are in the GTA's laboratory or recitation section. In general, tutoring for pay is discouraged; however, if there is a special situation, which makes it seem appropriate, prior approval to do so should be obtained from the CGSC.

As part of your GTA duty, you may be expected to assist with proctoring and grading lecture exams. Additionally, depending on your particular laboratory assignment, you may be assigned "help room" hours in 110 Fawcett Hall. It is your duty to alert your students to this opportunity, to be present during the assigned hours (in addition to any office hours you have scheduled) and to be prepared to assist students who attend (whether or not they are "your" students).

Some Useful Guidelines

An effective tutoring model employs several steps. Although the steps are sometimes overlapping, they can be described as follows:

1. Personal identification. Build a personal relationship with each student.

2. Student participation. Encourage student participation; get the student actively working on the problem or concept.

3. Asking questions. Stimulate student response through asking questions that lead to solving the problem or illuminating the concept.

4. Praise, or reinforcement. Employ generous amounts of praise (positive reinforcement) whenever warranted.

5. Seeking clues to difficulties. Analyze the student's understanding in terms of principles, concepts, and skills.

6. Accepting and understanding feelings. Identify the student's position - try to remember what it was like when you were a student at the same level.

7. Evaluation of learning. Encourage the student to demonstrate mastery of the material and provide opportunities for appropriate practice.

B-3. (e) Duties and Responsibilities of Laboratory Instructors

1. Attend the course TA meeting at the scheduled time each week.

2. Be at your office during assigned office hours. Help the students there in an enthusiastic, sincere, and courteous manner. Remember that your performance reflects on the chemistry department as a whole.

3. Be on time for your laboratory classes and ensure that you are present at **ALL TIMES** students are in the lab.

4. Read the instructions for conducting a laboratory class (abstracted from the ACS Handbook for Chemistry Assistants). Adhere to the suggestions made. Remember that a chemistry laboratory should be an effective learning experience for students. *It is your responsibility to teach them chemistry!*

5. SAFETY in the laboratory is your first concern. Wear safety goggles at all times and ensure that your students do the same. No food or beverages are permitted in the lab at any time.

6. At the first lab period, point out to the students the safety features of the laboratory.

7. If an accident occurs, you must fill out an Occupational / Non-Occupational Injury/Illness & Incident Report (D-1). If an injured student requires treatment at Student Health Services (SHS), you should direct another student to take the injured party to their location in 051 Student Union. You must not leave your laboratory unattended. If the student is unable to walk to SHS, use the Public Safety Phone in the hallway to request assistance. Please note: any treatment of the injured student is at his / her expense.

8. If required by the course instructor, present an introduction to each experiment. Briefly discuss the procedure and the use of any new equipment. Be prepared. Mention any hazardous reagents, equipment, or procedures.

9. Since you will be working one-on-one with students, you should get to know each student personally. If you do not know all of them you may be neglecting some of them. Do not play favorites.

10. Never leave the lab. In case of an accident or if additional reagent or equipment is needed, send a student to the course supervisor or lab manager.

11. Clean up the lab at the end of the class period. Make sure that the students clean their work areas and return reagents and equipment to the proper location. If they do not, it is your responsibility to correct the problem. Turn off all utilities, lights, gas, water, steam, hot plates, and lock all doors once students have left. Report any malfunctioning equipment to your supervisor.

12. Reports should be graded promptly and returned at the start of the next laboratory period.

13. It is your responsibility as a GTA to turn in your grades to the professor in charge of the course by the date specified by that professor. Pressures from your own graduate classes or exams are no excuse for shirking your GTA duties. Part of being a successful graduate student is learning how to budget your time effectively.

B-3. (f) Conducting a Laboratory Class

The laboratory is an essential phase in training the student in chemistry and your responsibilities as instructor are likely to be numerous and varied. The remarks following can be helpful as a check-list of these responsibilities.

Make it a habit to be present several minutes before the scheduled opening time. As instructor you are responsible for checking that the laboratory is in good order prior to the start of the experiment of the day. Report any mechanical difficulties, such as leaking faucets or burned-out light bulbs, to the proper individuals. If it is necessary to use special apparatus, you should see that it is available to the students at the beginning of the period. Further, check to see that the reagents needed for assigned experiments are available. Notations regarding the lab assignment may be written on the board, including any changes, omissions, or substitutions. Be prepared to answer questions on the assignment.

The Laboratory Period

Begin class promptly. Make necessary announcements and demonstrations. Call attention to specific directions for the assignment but keep the time for such talks to a minimum. Then, encourage students to start their own work quickly. Students should work at their assigned desks unless specifically told to work elsewhere or in groups. Ensure that each student performs the experiment properly and offer suggestions where needed to help them obtain satisfactory results.

Once class routines are established you are likely to find your time fairly well taken up answering questions. However, it is desirable whenever possible to observe the various students in their actual performance of laboratory work. In most classes you will be asked to evaluate each student's lab skills.

Make a point to ask students what they are doing, and expect them to answer without reading from the manual. If an apparatus has been set up, ask them to explain its function and perhaps the function of the different parts. Ask to see their record data. Insist that the student's records are current with the work and that they record their own observations. Other questions will suggest themselves with practice.

Watch regularly for opportunities to give help in developing good laboratory techniques and courtesy - for example, the need to keep corrosive chemicals or reactions, etc., away from balances or other special apparatus, or from a neighbor's notebook.

While making the rounds, also discuss the reports of the previous period, to make suggestions and to explain notations.

Effective teaching in the laboratory requires continuous contact with the students and their work. Make a definite effort to visit each student at least once during each laboratory period.

If the student is required to hand in a report before leaving, the report should be brought to you personally. If the time permits you may on occasion ask questions about the experiment or discuss with them the quality of the work. Such procedures can help to discourage hurrying through the performance of the experiments in order to leave the laboratory early. (Graded reports should be returned to the student at the next laboratory period.)

The GTA, as well as the students, should be in the laboratory throughout the period. The laboratory period is not a time to relax, grade papers, or to study for your own courses.

Before the End of the Period

Allow time for necessary clean-up operations. You expect to enter a clean laboratory ready for use by your section, so at the end of the period see that your own students clean up their individual working spaces and that reagent shelves and other community working areas are also clean for the next class.

Make any necessary announcements about future assignments, etc. Recheck once again, as you did before the period, special equipment and supplies; gas, water, and air outlets; lighting, etc.

Special Situations

The first and last laboratory periods of the term are not typical. During the first period the desk and its equipment are usually assigned to the student. This is the time to give general instructions concerning such matters as arrangement of the laboratory, conduct of the laboratory period, location of different types of reagents and apparatus, care of equipment and responsibility for returning things to their proper places, procedures for obtaining supplies, location and use of fire protection devices, and procedures in event of injury.

For the last period of the term it is difficult to give general directions. Procedures in different classes vary greatly. Usually the period is spent cleaning up and returning equipment. The best suggestion is simply that you familiarize yourself with those practices used by checking with the person in charge of the course.

Difficult Students

On rare occasions you may encounter a student who is disruptive and / or aggressive. The first approach in such cases is to announce to all students at the start of the next class period your expectations for class behavior. If this does not have the desired effect, you might take the disruptive student aside and explain why his / her behavior is having a deleterious effect on the lab. If this approach also is unsuccessful, talk to the laboratory supervisor regarding the problem.

Remember, you have the right to ask someone to leave the laboratory if his / her behavior is inappropriate and public safety can be called if the problem is of sufficient magnitude.

Other Comments

For laboratory dress, it is required that all students (and the instructor) wear a laboratory coat or other protective garment. This is a requirement for freshman and sophomore level classes and strongly recommended for upper level courses. No shorts or sandals are allowed in the laboratory, even in the summer! Safety goggles must be worn at all times by both the students and the instructor.

Student Evaluations

At the end of each semester, copies of the "Student Opinion Questionnaire" (D-2) are distributed in chemistry laboratory and recitation sections. Your students will use this form to evaluate your teaching performance in the course. After the forms have been turned in to the chemistry office, the faculty member in charge of the course will review them with you. The faculty member will then summarize the results of your students' evaluations and assess your contribution to the overall operation of the course on the "Teaching Assistant Evaluation Form" (D-3). This evaluation will become a part of your permanent record in your student file. The goal of student evaluations and your faculty evaluation is to give feedback in order to guide and encourage your teaching by suggesting ways for improvement. You are encouraged to discuss any concerns you have (before, during and after the semester) with the faculty member(s) for whom you are teaching. Valid criticisms should be accepted and a conscientious effort should be made to improve. If, even after discussion with the faculty supervisor, you are unhappy with the written evaluation, you will have the opportunity to write a rebuttal letter, which also will become part of your permanent record in your student file.

N.B.: Not every student accepted into the Chemistry Master's Program is offered a Graduate Teaching Assistantship, **nor is the position automatically renewed each year**. All GTAs are reviewed at the end of the academic year and may or may not be renewed, at the discretion of the department, based in part upon student and faculty evaluations. In addition, GTA performance is assessed every term and continued poor performance can result in extra duties, a wage reduction or even dismissal.

B-4. Research

B-4. (a) Temporary Advisor

Upon admission to the graduate program, you will be assigned a temporary advisor. This advisor will be assigned, in part, based upon your research interests, however, this may or may not be the advisor with whom you ultimately choose to complete your program. We ask that you formally choose a research advisor at the latest by the start of the Spring Semester of the year following your first enrollment in the program.

B-4. (b) Selecting a Research Advisor and Committee

Since the M.S. degree at WSU is essentially a research degree, the selection of a research advisor is an important decision and should be made carefully. Students are urged to begin thinking about possible areas of research activity and an appropriate research advisor as soon as possible. You should begin by reading the current outline of Faculty Research Interests provided in this handbook. Detailed research descriptions will be provided by each faculty member during the course of CHM 899-21 (Introduction to Research). By the end of this course you will have narrowed down your list of potential research advisors quite substantially. However, we recommend that students set up appointments with at least two faculty members regarding possible research activities by the end of their first semester.

During these individual interviews the faculty will discuss at some length the current status of their research and entertain questions, such as: "How long will it take me to complete this research?" or, "If this project does not work out, then what?" Most faculty will give you a tour of their labs and will let you have copies of their most recent publications or suitable literature references, all of which you may consult at your leisure. A good source about faculty members and their research is a second-year student in the research group.

When you have decided on a research professor and he/she has agreed to accept you into the research group, you should complete and turn in the "Advisor Selection Form" (D-4) to the CGSC for final approval.

The student and faculty advisor will select at least two additional faculty members to serve as a research advisory committee. This committee is charged with the responsibility of observing progress, offering advice on the student's research and, ultimately, evaluating the student's thesis defense. Approximately six months after the student has begun working in the laboratory, a meeting of the research advisory committee should be convened to assess the student's progress.

As soon as a research advisor and committee have been selected, the "Program of Study" (D-5) form should be completed and forwarded to the Chair of the CGSC for review, approval, and forwarding to the Graduate School. If changes in the student's program are made subsequent to filing this form, it is the responsibility of the student and advisor to update the form before application is made for graduation, otherwise, there may be some delay in the degree certification. As mentioned previously, it is quite likely that the graduate school will ask for a completed "Program of Study" form prior to your selection of a permanent advisor. If this is the case, fill in the form in consultation with your temporary advisor and submit it to the graduate school. It is always possible to make appropriate changes when a permanent advisor has been selected.

B-4. (c) Timetable for Student Progress

The typical progression of events for full time students with teaching assistantships is as follows:

	Action	Normal time (semesters)	Maximum time (semesters)
1.	Student selects advisor and thesis project	1	2

2.	Student and advisor select research advisory committee	1-2	2
3.	"Program of Study" form submitted to CGSC and then forwarded to Graduate School	1	2
4.	Progress Review with student's committee	2	2
5.	Student files the "Application to Graduate" form at Registrar's Office (fee required)	4-5	6
6.	Student defends Thesis	5-6	6

If after 6 semesters of full time matriculation a student has not taken his/her final oral thesis defense, the student's research advisory committee will meet with the student to ascertain what additional steps must be taken to complete the program. The Department Chair will appoint one additional member to this committee. From this time on, the student, research advisor, and committee will work closely to expedite completion of the program. A report on the committee's recommendation will be forwarded to the Department Chair.

It is important to note that your funding as a GTA may or may not be continued after 6 semesters. This decision will be based upon the department's current budget and resources and/or the funds available from your faculty advisor to support you beyond 6 semesters. It is therefore important that you make every effort to finish your program in 6 semesters. Please note that an "Early Start" semester will not count against the 6 semester support limit.

B-5. A Research Advisor's Expectations

It is very likely that as you near graduation, or even later, you will ask your advisor to write a letter of recommendation on your behalf to prospective employers. Your advisor will probably discuss some of the following qualities:

1. Enthusiasm for Research. Does the student exhibit a sincere interest in doing research? Does the student enjoy laboratory work? Library work? Does the student participate in seminars and group meetings? Are all of these activities performed without "having to twist the student's arm"?

2. Motivation. How well does the student proceed without outside motivation? Does the student "slow down" when the advisor is absent? Does the student find any excuse possible to stay out of the lab?

3. Perseverance. How well does the student face a number of failures in a short period of time? Does the student show a willingness to try several routes to accomplish a goal? Is the student's enthusiasm for research short lived?

4. Independence. How well does the student work alone? Does the student's curiosity in the project provide ideas for research without the aid of the advisor? Does the student ask "what if" instead of "what now?" Is the student creative in devising or developing new ideas? Can the student interpret results? Does the student use a series of results to suggest a new route to solving the problem?

5. Work Habits and Personality. What is the student's conduct in the lab? Is the student neat? Can the student work with fellow students? How does the student handle suggestions, directions and criticisms from the advisor? Can the student's results be trusted?

6. Productivity. How well does the student keep to time tables? Can the student budget time properly? Are a sufficient number of goals met?

7. Knowledge of the Area. Does the student keep abreast of their topic? Does the student keep up with the chemical literature?

If you adopt these qualities as guidelines to your study and research, you will get the most from your educational experience at Wright State University and develop habits which will ensure your success in future chemistry endeavors.

B-6. Seminars

Chemistry is an ever-expanding field that prospers from a constant influx of new ideas. The information obtained in the classroom may soon be outdated and thus represents only one facet of the educational process, to be supplemented by outside sources of information such as journals and scientific meetings. Continuing exposure to a wide range of chemical topics, as well as the opportunity to develop and present a seminar, is afforded by the Chemistry Department Seminar Program.

This weekly program normally is held every Friday afternoon at 3:30 p.m. It brings visiting scientists to the department on a regular basis, and time is usually allotted for students to meet with the speakers informally and to ask questions. Attendance at the Departmental Seminar is required of all students and it is designated as a formal course, CHM 8000, for which students enjoying departmental support should enroll each semester the student is supported, except summers (however, see section **B1a** for a *caveat* regarding part-time students).

Often, associated with a Friday seminar, the department provides a free pizza lunch to allow students the opportunity to talk to the seminar speakers from larger universities, industry or government entities. This is a very generous privilege and, accordingly, if you are enrolled in the CHM 8000 class, you are required to attend each pizza lunch, unless given permission by the faculty member in charge of that semester's class. Additionally, each semester, the department office staff schedule graduate students to deliver and return refreshments for seminar. It is your duty to check if and when you are scheduled and to perform this duty.

Effective communication of scientific information is an important asset to a chemist, and one that is best developed with practice. For this reason, graduate students are required to present a seminar before the department.

Seminar Topics

The topic of your departmental seminar should be selected in consultation with your thesis advisor. Please plan carefully, since considerable time will be required for the preparation of a good seminar.

Seminar Length and Level

The length of the seminar will be specified by the thesis advisor, but a working estimate should be about 25 minutes. The level of the talk should be such that the majority of the audience can understand it and also learn something. The talk should contain only as much background material as necessary to bring the audience to the level required by the subject and then should develop the subject with emphasis on the important fundamental aspects of the topic. The introduction should specify the objectives of the research under discussion and explain its significance. If the introduction and background material are well prepared and presented, the audience of scientists can learn what is necessary in a short time and the bulk of the seminar can contain material that is new to most of the audience. It is helpful for the audience if the outline of the rest of the talk is included in the introduction.

Seminar Presentation

The ability to speak well and present information in a clear, concise fashion before an audience of one's peers is often an integral part of the job interview process. Thus, the student seminar affords the student a unique opportunity to obtain and/or refine these skills.

The talk should never be read or recited verbatim from memory. The effectiveness of oral delivery is inversely dependent upon the frequency with which the speaker must refer to notes or cards. For a well-prepared speaker who is familiar with the subject matter, a set of slides or transparencies often suffices as a running outline for the presentation.

Avoid discussing minor aspects of the topic in such detail that the essential information becomes obscured. For example, in most cases, presentation of algebraic details of a mathematical derivation is guaranteed to lose audience interest and should seldom be attempted. If a detailed derivation is an essential feature of the seminar, then only important aspects of the derivation should be described. Similarly, extensive tables of data are usually not of interest. They can be presented, but the data should be pre-digested by the speaker and pertinent examples provided as needed to illustrate the important points.

All work (published or unpublished) done by others should receive appropriate attribution. In scientific seminars, work not attributed is presumed to be the speaker's own, unless the results are known commonly by those outside the field.

A statement such as "The author didn't say anything about that", is usually not an adequate answer to a question from the audience. The listeners are interested in learning the facts and also the speaker's opinions on the subject, and not simply what a given author might have stated in a given publication.

An excellent article entitled, "The Graduate Student Seminar," by Keith J. Laidler was published in *J. Chem. Educ.*, **48**, 671 (1971). Several important items not included above are discussed, such as language, how to end a seminar, *etc*. It is recommended reading for all students.

Above all, the preparation and presentation of a research-level seminar on a topic of genuine interest to the speaker can be an extremely enjoyable undertaking. Such enthusiasm is easily communicated and will help to make our seminar program a positive educational experience for all concerned.

B-7. The Thesis

The thesis represents the final documentation of your achievement as a graduate student. If there is any single injunction that might be appropriate, it is the recommendation that you keep in mind the eventual *need* for a thesis. Organization is of utmost importance: this applies to literature searches, labeling of spectra, and to the design and recording of experiments. Careful attention to such details from the start will greatly facilitate the task of thesis writing.

To help with the goal of turning research into a thesis, we offer a course, CHM 7010, which will be most useful to the student if taken at the start of the 2nd year in the program.

The following information may answer questions and give you information helpful in preparing to defend your thesis and receive your M.S. degree. Remember, it is your responsibility to apply to the Registrar's office for graduation.

1. File "Application to Graduate" form with the Registrar's Office according to the schedule below. There is an initial $35 application fee and a $25 “follow up” fee for each subsequent application. The schedule below may be found at the Registrar’s web page: http://www.wright.edu/graduate-school/academics/graduation-application .

The registrar sends a copy of the Application to the Graduate School and they prepare a Degree Certification checklist and attach your degree application and transcript. This is sent to the Departmental Office for signature and a statement of degree requirement(s), which need to be completed. A copy of this checklist is forwarded to the Registrar's Office by the Graduate School. Upon completion of the thesis and other degree requirements, as noted in the checklist, the Registrar is informed that the student is ready for graduation.

2. The "Program of Study" form on file with the Graduate School should be checked for completion of work when the Application is filed. Any changes in program should be entered at this time.

3. Obtain a copy of "Graduate Thesis / Dissertation Handbook" from the Graduate School or from the website at **www.wright.edu/gradschool/thesis/index.html** for instructions on preparation of the thesis, and other important information. (Be especially accurate in following directions on margins).

4. Contact one of the department staff members to reserve the conference room for your thesis defense after arranging a date suitable to all members of your thesis committee. At least 48 hours prior to the defense, request a computer from the Center for Teaching and Learning (if needed) and check that the departmental digital projector will be available.

5. *At least one week* prior to your thesis defense, prepare a notice stating your name, the day, time, title, place, *etc*. of your defense and post it on the Chemistry Department doors and other strategic places in the building. ***Provide also an electronic version of the announcement, to the department staff, such that it can be placed on the department website.*** Thesis defenses are open to all who wish to attend. Further, it is required that you deliver a complete copy of the thesis to your committee *at*

least one week prior to the defense (unless otherwise agreed upon by individual committee members).

Note: For items 4. and 5., see **D-6** for the *Thesis Defense checklist* that must be completed and handed in to the Department office at least one week prior to the defense.

6. Defense format – The defense consists of a formal presentation of research work, followed by an open question period and a closed question period, the latter with only the thesis committee.

7. Thesis format check will be performed at your request, the Graduate School will make a format check of any thesis, or portion thereof, prior to final deposit. The format check may be submitted on paper or electronically. This review will evaluate the thesis for format and style as established in this handbook. This review is intended to minimize the likelihood of thesis rejection after the deposit deadline. However, it in no way guarantees the acceptability of the final copy. To allow ample time for completing the final deposit copy, you are advised to arrange for a format check well in advance of the deposit deadline. Format checks will be done as soon as possible, but please allow at least two (2) days for completion.

   a. **Electronic Submission** - Please submit the thesis to the Graduate School as a PDF file/document on CD-Rom or as an e-mail attachment. E-mailed files should be sent to lisa.lewandowski@wright.edu.

   b. **Paper Submission** - Please submit a paper copy to the Graduate School, E344 Student Union.

8. After your defense, make sure that your thesis committee chair sends a letter to the Dean of the Graduate School stating that you successfully defended your thesis. You can obtain this memo with fill-in-blanks from the department. Also, check to make sure that a Change of Grade form has been sent in to the Registrar converting any "M" grades to letter grades. *You will not graduate until these things are done*. (If appropriate, one change of grade form may be prepared for all semesters of CHM 8980 and CHM 7890 if registered, with a note under "Reasons" that "Student has completed all requirements for M.S. degree").

9. **Electronic Submission (ETD)** - The PDF file of the thesis must be submitted to the OhioLINK* Electronic Thesis and Dissertation (ETD) Center (*OhioLINK, located in Columbus, is the ETD repository for the state universities system in Ohio.). OhioLINK requires that the ETD be submitted in PDF format. One copy of the PDF thesis must be deposited at the OhioLINK ETD Center by going to http://www.ohiolink.edu/etd/submit2 *not later than 30 days after the end of the semester in which the degree will be granted* (due dates are published by the Graduate School and distributed to the departments and program offices). This final copy should follow the form prescribed in the thesis handbook and should be carefully produced, free of errors in style, mechanics, and format. The Graduate School is notified by OhioLINK when an ETD is deposited, and final approval is the Graduate School's responsibility, not OhioLINK's. Final copies will not be approved at OhioLINK if errors in format require corrections. The PDF file must include the typed thesis approval page, but without signatures. One (1) copy of the typed thesis approval page with signatures must be submitted to the Graduate School for filing. The ETD cannot be approved until the Graduate School receives the signed thesis approval page.

Thesis copies:

a. A copy, in PDF Format, of the thesis must be deposited in the Chemistry Department office. This final copy should follow the form prescribed in the thesis handbook and should be carefully produced, free of errors in style, mechanics, and format.

    - One (1) copy of the typed thesis approval page with signatures must be submitted to the Chemistry Department.

b. As bindery costs have soared over the past few years, it is no longer feasible for the Chemistry Department to provide extra bound copies to graduates. If the thesis is provided in PDF format, the Department will cover the cost of binding three copies, one for the Department, one for the advisor and one for the student. A student wishing to obtain extra bound copies of his or her thesis (at his or her expense) can do so through an on-line submission – thesisondemand.com

10. If you are not registered for any courses the semester you plan to graduate, but still need to complete your thesis or other degree requirements, you should register for one hour of continuing registration (CHM 7890). If you have completed all requirements for a graduate degree in the semester prior to submission of an Application for Graduation, you need not register for continuing registration in your semester of graduation.

11. A student must complete the thesis and have it edited, submitted and graduate within seven years of beginning M. S. graduate work.

C. FACULTY RESEARCH AREAS

Aga, Rachel – rachel.aga@wright.edu – 468 Oelman Hall– 937-775-4653 – Assistant Professor of Physical Chemistry, Ph.D., Univ. of Kansas, 2002, computer simulations of physical and chemical properties of materials; photovoltaics.

Arumugam, Kuupuswamy – kuppuswamy.arumugam@wright.edu – 408 Oelman Hall – 937-775-4661 – Assistant Professor of Organic / Organometallic Chemistry, Ph.D.. Tulane University, 2009, organic/organometallic synthesis, anti-cancer drugs, and functional hybrid materials.

Dolson, David A. – david.dolson@wright.edu – 459A Oelman Hall– 937-775-2028 – Associate Professor of Physical Chemistry, Ph.D., Indiana Univ., 1981, kinetics and spectroscopy of transient gas phase atoms and molecules using laser techniques.

Feld, William A. – william.feld@wright.edu – 420 Oelman Hall – 937-775-2511 – Professor of Organic Chemistry, Ph.D., Univ. of Iowa, 1971, structure-solubility relationships in heterocyclic polymers, synthesis of organic materials with nonlinear optical properties.

Fossum, Eric – eric.fossum@wright.edu – 422 Oelman Hall – 937-775-2047 – Professor of Organic Chemistry, Ph.D., Carnegie Mellon Univ., 1995, dendrimer and hyperbranched macromolecules and nanoscale wires.

Gilpin, Roger K. – roger.gilpin@wright.edu – 008 M&M – 937-775-2691 – Mead Professor of Environmental Chemistry, Ph.D., Univ. of Arizona, 1973, analytical and environmental chemistry.

Grossie, David A. – david.grossie@wright.edu – 202 Oelman Hall– 937-775-2210 – Associate Professor of Inorganic Chemistry, Ph.D., Texas Christian Univ., 1982, single crystal X-ray structure analysis, synthesis of high valent silver and host-guest complexes.

Higgins, Steven R. – steven.higgins@wright.edu – 205 Oelman Hall – 937-775-2479 – Professor of Environmental and Analytical Chemistry, Ph. D., Univ. of Wisconsin, 1996, surface and interface chemistry, atomic force microscopy of solid-liquid interfaces.

Katovic, Vladimir – vladimir.katovic@wright.edu – 434 Oelman Hall – 937-775-3004 – Professor of Analytical Chemistry, Ph.D., Univ. of Zagreb (Croatia), 1965, organometallic and coordination chemistry of early transition metals, electrochemistry.

Ketcha, Daniel M. – daniel.ketcha@wright.edu – 445 Oelman Hall – 937-775-3230 – Professor of Organic Chemistry, Ph.D., Temple Univ., 1984, organic synthesis and bioorganic, heterocyclic natural products, combinatorial chemistry.

Lunsford, Suzanne – suzanne.lunsford@wright.edu – 466 Oelman Hall – 937-775-2480 – Professor of Chemical Education. Ph.D., University of Cincinnati, 1995, electrochemistry and chemical education.

McGowin, Audrey E. **–** audrey.mcgowin@wright.edu – 220 Oelman Hall – 937-775-2791 – Associate Professor of Environmental / Analytical Chemistry, Ph.D., Univ. of Missouri, 1991, environmental fate of chemicals and waste treatment.

Seybold, Paul G. **–** paul.seybold@wright.edu – 219 Oelman Hall– 937-775-2407 – Professor of Physical Chemistry, Ph.D., Harvard, 1968, molecular structure-property relations, applications of molecular orbital theory, molecular luminescence spectroscopy.

Sizemore, Ioana. – ioana.pavel@wright.edu – 464 Oelman Hall – 937-775-4652 –Assistant Professor of Physical Chemistry, Ph.D., Univ. of Wurzburg, Germany, 2003, surface-enhanced Raman spectroscopy for biosensing.

Turnbull, Kenneth **–** kenneth.turnbull@wright.edu – 405 Oelman Hall – 937-775-2671 – Professor of Organic Chemistry, Ph.D., Heriot-Watt Univ. (Scotland), 1976, bioorganic synthesis and study of sydnones, synthetic reagents for amination and azidation, and polymer supported reagents.

Battino, Rubin **–** rubin.battino@wright.edu – 070 Brehm Laboratory – 937-775-2487 – Professor Emeritus, Ph.D., Duke Univ., 1957, thermodynamics of solutions, solubilities and partial molar volumes of gases in liquids.

Fortman, John J. **–** john.fortman@wright.edu – 070 Brehm Laboratory – 937-775-2188 – Professor Emeritus, Ph.D., Univ. of Notre Dame, 1965, chemical education - lecture and video tape techniques, uses of analogies and demonstrations as teaching tools.

D. FORMS

At various times throughout your career within the department, you will need to file, or will be presented, certain forms for your information and improvement. Sample copies of each of these are presented in the following pages and a brief description of each is given below.

D-1 **Occupational / Non-Occupational Injury/Illness & Incident Report** - to be filed by the GTA whenever an accident occurs in a laboratory under his / her supervision.

D-2 **Student Opinion Questionnaire** - to be completed by your students in lab and / or recitation sections. (this is a sample of one of three forms)

D-3 **Teaching Assistant Evaluation Form** - to be completed by the faculty member in charge of the course you are teaching. The form will become a permanent record in your student file after the professor has discussed the evaluation with you and has provided you an opportunity for written rebuttal (as appropriate). The rebuttal (if written) also will be included in your student file. (this is a sample of one of three forms)

D-4 **Advisor Selection Form** - to request approval of your thesis advisor from the Chemistry Graduate Studies Committee (CGSC).

D-5 **Program of Study Form** - to be completed by each graduate student as soon as the research advisor is approved. This form should be given to the chair of the CGSC who will subsequently forward it to the Graduate School. Form is available online in Microsoft Word format at http://www.chm.wright.edu/graduate.html.

D-6 **Thesis Defense Checklist** - to be completed by each graduate student at least one week prior to his or her defense. The checklist should be signed by the student's advisor and committee members and provided to the Department office staff at least one week prior to the defense. The checklist will be placed in the student's graduate folder.

D-7 **M.S. Program Annual Progress Report**

D-8 **Pre-Travel Checklist**

WRIGHT STATE UNIVERSITY

Occupational / Non-Occupational Injury/Illness & Incident Report

RETURN TO: Dept. of Environmental Health & Safety
047 Biological Sciences II
Phone: (937) 775-2215 // Fax: (937) 775-3761
NOTE FOR EMPLOYEES: Form is to be completed by the SUPERVISOR/CHAIR/DIRECTOR

Form must be completed by injured. WSU Personnel require a supervisor's signature.

Name: _____

Department: _____ Job Title: _____

Campus Address (Room/Bldg): _____ Work Phone No.: _____

Work Location: _____

Home Address (contrators/visitors): _____ Phone No.: _____

Date of Birth: _____ Gender: ☐ Male ☐ Female Date Hired: _____ ☐ N/A

Status: ☐ Employee ☐ Student Employee ☐ Contractor ☐ Student ☐ Visitor ☐ Volunteer

The Accident / Injury / Exposure or Near Miss Incident:

Date and time of injury/illness/event: _____ ○AM ○PM ○Time cannot be determined

Time began work: _____ ○AM ○PM Injury event occurred at a university sponsored event? ○Yes ○No

Where did the incident occur? _____ Did the incident occur on university property? ○Yes ○No

Type of incident: ☐ Break ☐ Bruise ☐ Burn ☐ Cut/laceration ☐ Exposure ☐ Fall ☐ Slip/trip ☐ Near miss

Areas of body injured or exposed: _____

What was the individual doing before the incident occurred? _____

What happened? _____

What was the exposure, injury or illness? _____

The object/substance directly causing harm: (If this question does not apply to the incident, leave it blank):

If the individual died, when did the death occur? Date of death: _____ ☐ Not applicable

Lost work time? (excludes date of incident): ☐ Yes ☐ No

Restricted work time? (excludes date of incident): ☐ Yes ☐ No

Responsible Supervisory Person

Signature: _____ Date _____

Printed Name: _____ Work No.: _____

Official Title: _____ Address (Room/Bldg): _____

Medical Treatment Received/Required

☐ Declined Treatment ☐ No Treatment Required ☐ First Aid Only ☐ ER/Urgent Care ☐ In-Patient Hospitalization

Name of Physician or health care professional: _____

Street: _____ City _____ State _____ Zip _____

Follow-up investigation: corrective action needed? ☐ Yes ☐ No

☐ Contributing Items/Issues: _____

Corrective action: ☐ Elimination/Substitution ☐ Engineering Controls ☐ Warnings ☐ Training ☐ PPE Assessment

Contacts & Date: _____

☐ Preventive Measures: _____

EHS USE: ☐ Occupational ☐ Non-Occupational ☐ Incident Report Case File#: _____

☐ Recordable ☐ Non-Recordable No. of Lost Work Days _____ No. of Restricted Work Days _____

Copy of form forwarded to: ☐ Office of General Counsel ☐ Office V. Pres. of Student Affairs ☐ Contact Management

The Occupational & Non-Occupational Injury/Illness & Incident Report Form:

Complete this Form and return it to the Department by the end of the work day. If there are questions about completing the Form contact the Department at (937) 775-2215 during regular business hours.

For Employee, Student Employee and Student

All accidents, exposures, injuries and near miss accidents are to be recorded on this Form. Return this Form to the Department of Environmental Health and Safety by the end of the work day to allow for follow up documentation or investigation.

For Visitors or Contractors:

Complete this Form to report accidents, injuries or exposure incidents or a near miss incident. Return this Form to the Department of Environmental Health and Safety by the work day to allow for follow up documentation or investigation. Contractors working on Wright State property under direct contractor direction must report their injury accidents to their employer using the appropriate OSHA form.

What is a Near Miss Incident?

A near miss is a situation where an injury did not occur but could have. Examples of a near miss would include non-injury or exposure situations such as falling on steps, slipping or falling on ice, falling off ladder, or dropping and breaking a chemical bottle in a lab.

What is Lost or Restricted work time?

Under orders from prescribing doctor or health care professional this is the number of days you are not able to perform your normal work activities, excluding the day of the injury. If you were able to return to work the day following the accident/injury incident there is no lost or restricted work time.

Responsible Supervisory Person:

(i.e.; Supervisor, Department Chair, Dean, Director, V. President, or President) The person responsible for supervising the work or activity of the injured person is the person responsible for completing the Form.

Medical Treatment:

Mark the highest level of treatment given is response to the injury/illness incident. What medical treatment was given?
Did the injured person refuse treatment?
First Aid treatment is defined by OSHA as being: Using non-prescription drugs at non-prescription strength; receiving tetanus shot; flushing/soaking skin wounds; using band-aid type covering to cover wounds; using hot/cold therapy; using non-rigid supports; using temporary immobilization devices for transport; drilling of nail to relieve pressure or drain fluid from a blister; use of an eye patch; use tweezers, swabs or simple means to remove splinter or other foreign material from body other than eye; irrigation or swab used to remove material from eye; use of finger guard; massages and drinking fluids for heat stress relief.

Follow up Investigation by the Department of Environmental Health and Safety

Cause of accident, exposure and other contributing factors:

Corrective Actions (Engineering Controls, Repairs or Replacement of Tools/Equipment, Personnel Training):

Preventive Measures (General Awareness Notifications, Posting, PPE, Training):

D2 - Wright State University's Department of Chemistry
Student Opinion Questionnaire
Laboratory & Recitation Evaluation

Teaching Assistant's Name: _____

Lab Course Number: _____

Please answer questions 1—9 by circling the best response.

1) **Attitude Toward Students:** Does the teaching assistant show an interest in the students? Is he/she courteous and understanding?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

2) **Planning and Preparation:** Are lab/recitation plans well made? Is lab/recitation time well spent?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

3) **Knowledge of Subject:** Does the teaching assistant have a good knowledge and understanding of the subject matter of this course?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

4) **Clarity of Explanation:** Are laboratory assignments and explanations clear?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

5) **Extra Effort with Students:** Did the teaching assistant make an extra effort with students in the laboratory and/or recitation?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

6) **Laboratory Safety:** Was the teaching assistant safety conscientious?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

7) **Attitude Toward Subject:** Does the teaching assistant appear to enjoy teaching chemistry?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

8) **Lab Evaluation:** Does the teaching assistant give fair lab quizzes?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

9) **Overall Rating:** How would you rate your teaching assistant overall?

1. Excellent 2. Good 3. Average 4. Fair 5. Poor

10) Which lab(s) was/were the most or least useful to you personally?

Most useful:

Least Useful:

11) Which lab(s) gave you a sense of personal involvement and accomplishment?

12) What recommendations would you make to improve the course and/or instructor quality?

Wright State University's Department of Chemistry
Student Opinion Questionnaire
TA Laboratory & Recitation Evaluation Form

TA's Name: _____
Semester: _____ Course: _____
Course Instructor: _____

Duties (cross out any that do not apply; add others as necessary):

Supervising labs	Grading lab reports
Conducting recitation sessions	Enforcing safety procedures
Evaluating student performance	Assisting in grading lecture exams
_____	_____
_____	_____

Summary of Student Evaluation Forms
(1 = Excellent; 5 = Poor)

(1) Attitude Toward Students:	_____	(6) Laboratory Safety	_____
(2) Planning and Preparation:	_____	(7) Attitude Toward Subject	_____
(3) Knowledge of Subject:	_____	(8) Lab Evaluation	_____
(4) Clarity of Explanation:	_____	(9) Overall Rating	_____
(5) Extra Effort with Students:	_____		

Contributions to Course Operation
(Evaluated by faculty member)

Responsibility toward duties:	E	G	A	F	P
Contributions to TA meetings:	E	G	A	F	P
Providing student feedback:	E	G	A	F	P
Extra contributions to the course:	E	G	A	F	P

Additional Comments:

_____
Supervising Faculty Member Signature / Date

Advisor Selection Form

[Please return the completed form to the chair of the Chemistry Graduate Studies' Committee]

Date: _____

Name of Student (& Signature): _____

I would like to conduct my M.S. thesis research under:

Professor _____

My research project will deal with _____

_____

_____

_____

Name of Advisor (& Signature) _____

Committee Action (& Signatures) _____

_____

Program of Study

Wright State

School of Graduate Studies
Dayton OH 45435

Student's Name: Last, first, middle

UID

None
Entrance examination Name, Score

Degree Sought: (check one)
☐ M.A. ☐ M.B.A. ☐ M.S. ☐ M.A.T.
☐ M.Ed. ☐ M.S.T. ☐ M.Mus.

Thesis required: Yes X No

Foreign language requirement (specify)
None

Projected completion date:

Science and Mathematics
College

Chemistry
Department or program

Chemistry
Major Major number

Planned Graduate Program **F – Fall, Sp – Spring, Su - Summer**

Department name	Course number	Semester hours of credit	Course title	Req.	Elec.	Trans.	Grade	Sem/Yr

Acceptance/Signature and date

Student

Major Advisor

Committee Member

Program Director or Department Chair

Committee Member

Committee Member

Committee Member

Office Use Only

D-5

8/4/16 KAB

Thesis Defense Checklist Candidate Name _____

- Date, Place & Time of Defense _____
- Names of Committee Members _____

  _____
- Room Reserved _____
- Computer & Digital Projector Reserved (as needed) _____
- Defense Announcement posted (*at least one week before defense*) _____
- Thesis to Committee (*at least one week before defense*) _____

Approved (*at least one week before defense*) _____
(Advisor; date)

Approved (*at least one week before defense*) _____
(Committee Member; date)

Approved (*at least one week before defense*) _____
(Committee Member; date)

Student Name: _____ **Advisor Name:** _____

Committee Member: _____ **Committee Member:** _____

Coursework ☐

GTA Duties ☐

GTA Research ☐

Student Signature	**Date**	**Advisor Signature**	**Date**
Committee Member Signature	**Date**	**Committee Member Signature**	**Date**

Pre-Travel Checklist:

For a complete explanation of Wright State University Travel policy, please read the material at http://www.wright.edu/wrightway/5601.html

- ☐ Advisor approval for travel _____
- ☐ Submit abstract/paper to conference for acceptance
- ☐ Obtain travel authorization form and chair/departmental approval
- ☐ Submit CoSM special projects form (include abstract/paper)
- ☐ Meet with departmental travel coordinator to make
  - Air Travel reservations
  - Hotel accommodations
  - Registration payments
  - Other travel requirements
- ☐ Rental Car (if necessary) reservation must be made with Departmental ProCard (policy http://www.wright.edu/wrightway/2601.html)
  - Complete the Driver Application Form (DAF) at http://www.wright.edu/admin/bpra/risk/driver.doc
  - Submit the DAF to the department travel coordinator three weeks before travel
  - Review Wright State's car rental insurance policy go to http://www.wright.edu/admin/bpra/risk/
- ☐ Obtain a travel packet from departmental travel coordinator approximately one week before travel.

Post-Travel Checklist:

- ☐ Submit travel packet with forms completed, all receipts, airline ticket stubs (if applicable), badges, programs, etc. to the departmental travel coordinator within one week after travel.

All appropriate forms are forwarded to CoSM business manager after the departmental travel coordinator has reconciled the travel authorization and receipts. The business manager then forwards the appropriate forms and receipts to accounts payable. Accounts payable reviews all receipts and requests to ensure enforcement of WSU travel policy. Once all policy requirements have been met, accounts payable forwards a check to the traveler.

Version 9/25/2008

E. Chemistry Graduate Course Descriptions

Course Number-Credit Hours

6020-3 *Advanced Environmental Chemistry and Analysis*
This course will provide a general understanding of what happens to chemicals in the environment and how xenobiotics (chemical foreign to living systems) react and interact with natural systems to create environmental problems. Students will develop an understanding of the chemical nature of air, water, and soil; select appropriate methods for sampling and analysis of environmental samples; interpret the physical and chemical properties of a substance to predict its fate; and predict how chemical degrade and move in the environment. (Lecture and Lab)

6170-2 *Applied Chemical Spectroscopy*
Practical applications of various spectroscopic techniques (mass spectroscopy, infrared spectroscopy, ultraviolet spectroscopy, & nuclear magnetic resonance) are integrated for the explanation
of the structure of organic molecules. A problem solving approach is used.

6370-2 *Electroanalytical Chemistry*
Fundamental principles of electrochemistry and the application of electrochemical methods to chemistry and chemical analysis.

6450-3.5 *Concepts in Chemistry for MST Students*
Basic fundamental concerns of chemistry for early childhood education majors. Those concrete observable topics most appropriate for early childhood education.

6500-4 *Concepts in Chemistry II*
Concepts in chemistry II is for graduate students in middle childhood science education (MST Program). Course includes detailed study of chemical reactions, kinetics, environmental issues, acids/bases, and nuclear chemistry. Portfolio development will be utilized for students to learn the development of inquiry activities for the classroom.

6550-2 *Chemical Microscopy with Applications*
Examination of microscopy instrumentation and its applications to the study of surface and interface chemistry. The course will cover fundamentals of instrumentation design and methods. Topics will focus on scanning probe microscopy and its applications, particularly to solid-fluid interfaces.

6610-2 *Synthetic Polymer Chemistry*
Step-growth and chain-growth polymerization in homogeneous and heterogeneous media; properties of commercial polymers.

6650-2 *Physical Polymer Chemistry*
Introduction to the structural and physical aspects of macromolecules; emphasis on the relationship of polymer structure to physical and mechanical properties.

6720-4 *Chemical Crystallography*
Methodology and techniques in the determination of crystal and molecular structure using x-ray diffraction.

6880-1 to 4 *Independent Reading in Chemistry*
Selected Readings in Chemistry.

6900-1 *Critical Literature Analysis*
For the development of a set of critical thinking skills that will allow for a thorough analysis of current chemical and general scientific literature.

6980-3 *Chemistry for Education Majors*
Selected topics in chemical education. Directed readings or one-time offerings of topics related to the teaching of chemistry at various levels using different pedagogical approaches. May include summer workshops or institutes.

7000-1 *Principles of Instruction in Chemistry*
Survey of available instructional materials and discussion of educational theory and techniques leading to more effective instruction. For graduate teaching assistants only.

7010-1 *Turning Research into a Thesis*
The collection, organization and description of chemical data for the process of writing a thesis.

7020-1 *Research Perspectives in Chemistry*
Lecture/reading course to acquaint new graduate students with the research being carried out by the faculty in the Department of Chemistry.

7180-1 *Chemical Processes in the Environment*
This course will further develop the student's skills for predicting the fate of xenobiotic chemicals in the environment and how they react and interact with natural systems to create environmental problems. The course will focus on heavy metals and halogenated organic molecules and their fate and effects. Interpretation of physical and chemical properties of environmental contaminants to predict their fates and potential to degrade and move in the environment are examined.

7200-2 *Advanced Inorganic Chemistry I*
Study of the modern theories of valence, structural inorganic chemistry, & the chemistry of nonmetals.

7210-3 *Advanced Inorganic Chemistry II*
Thorough examination of the chemistry of metals stressing the transition elements, ligand field theory, and mechanisms of inorganic reactions.

7350-1 to 4 *Selected Topics in Analytical Chemistry*
A selected topic in the field of analytical chemistry such as chromatography, electroanalytical chemistry such as trace analysis, bioanalytical chemistry, advanced instrumental analysis, analytical spectroscopy, or separation methodology.

7440-2 *Structural Concepts in Organic Chemistry*
Study of molecular orbital theory, reactive species, theories of acids and bases, and an introduction to stereochemistry.

7460-2 *Elements of Organic Reactions*
Discussion of the more important organic reactions including their scope, limitations, and mechanisms.

7480-2 *Synthetic Organic Reactions*
Systematic treatment of organic reactions including, where applicable, some theoretical basis for the nature of the reaction. Emphasis on the uses of these reactions in organic synthesis.

7500-3 *Introduction to Quantum Chemistry*
Introduction to the ideas and mathematical techniques of quantum theory, including applications to some simple chemical systems.

7510-2 *Chemical Kinetics*
Characterization of simple and complex kinetic systems; experimental techniques, methods of data analyses; kinetic theories; reactions in gas phase, in solution and chemical chain reactions; deduction of reaction mechanisms from experimental rate laws.

7520-2 *Thermodynamics*
Chemical thermodynamics, fundamentals; first, second, and third laws; applications to solutions.

7620-2 *Analytical Separations*
Theories of separation techniques are reviewed. The two techniques of gas & liquid chromatography are discussed with emphasis in column technology, inlet systems, and detection devices.

7630-2 *Mass Spectrometry*
Current topics in mass spectrometry are discussed with emphasis on theory and state-of-the-art instrumentation and ionization methods.

8000-1 *Seminar*
Chemistry Department Seminar.

8250-1 to 3 *Special Topics in Inorganic Chemistry*
A selected topic in the field of inorganic chemistry, such as the reactions of substances in nonaqueous solvents, metal chelate compounds, inorganic reaction mechanisms, ligand field theory, or the chemistry of the lanthanides and actinides.

8250-1 to 3 *Special Topics in Organic Chemistry*
A selected topic in the field of organic chemistry, such as organic spectroscopy, heterocyclic chemistry, organometallic chemistry, and the chemistry of natural products.

8250-1 to 3 *Special Topics in Physical Chemistry*
A selected topic in the field of physical chemistry such as molecular spectroscopy, advanced molecular structure, magnetic resonance, X-rays, crystal structure, statistical mechanics, and precision physical-chemical measurements.

8960-2 *Early Start Research*
A short-term research project as an introduction to Masters-level chemistry research.

8970-1 to 10 *Chemistry Research*
Original research in a CHM faculty laboratory.

8980-1 to 4 *Thesis Research*
Progress and completion of a research project which is suitable for publication.

8990-2 *Thesis Defense*
Research for the thesis.

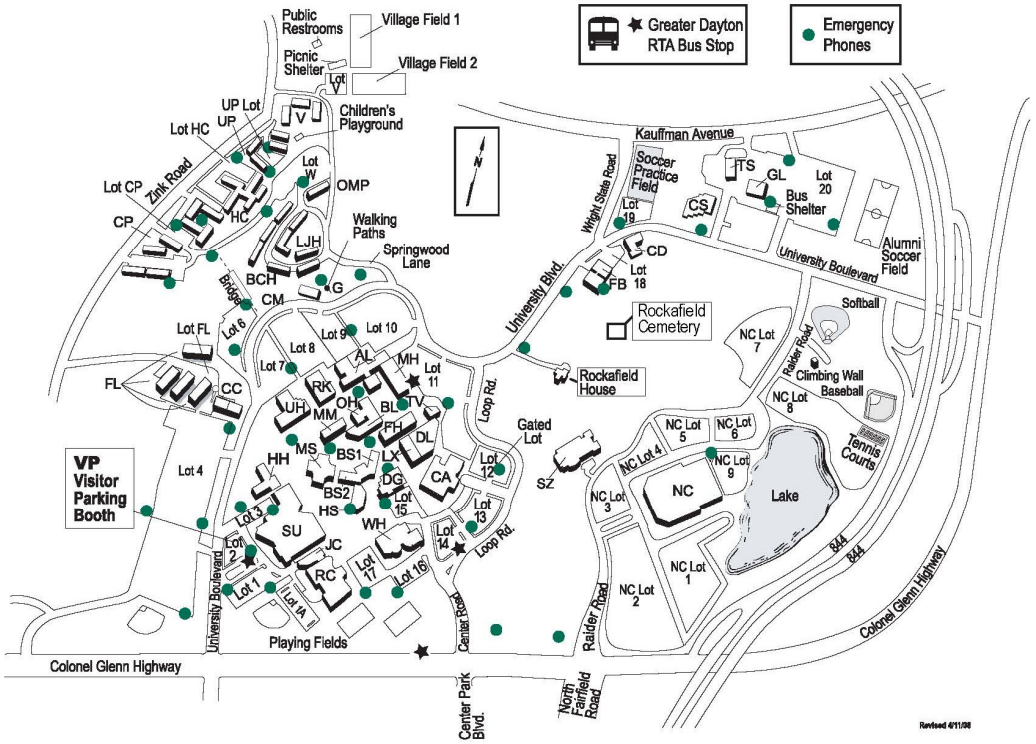
General Prerequisites
It is assumed that new graduate students will have a B.S. in chemistry & as such will have taken one year of general chemistry, at least one year of organic chemistry, one year of physical chemistry (and at least one lab), inorganic chemistry, quantitative analysis, instrumental analysis, one year of calculus, & one year of physics. If there are deficiencies in any of these areas, remedial courses will be required before moving on to the above courses.

F. ADDRESSES AND TELEPHONE NUMBERS

Bolinga Center 140 Millett 775-5645	Bookstore E182 Student Union 775-5600
Bursar 224 Medical Science 775-5650	College of Science and Math, COSM -- Dean's Office 134 Oelman 775-2611
Chemistry Department 202 Oelman Hall Office – 775-2855 Fax – 775-2717	Environmental Health and Safety 047 Biological Sciences II 775-2215
Graduate School E344 Student Union 775-2976	UCIE – University Center for International Education E190 Student Union / 775-5745
Nutter Center, Music Department, and Campus Recreation Box Office 186 Student Union 775-5544	Parking and Transportation 224 Medical Science 775-5690
Campus Police Department Emergency – 775-2111 or 911 Communications Center – 118 Campus Services Bldg. 775-2056 Lost and Found - 065 Allyn 775-4444	Registrar Office 248 Medical Science 775-5200 Raider Connect – Student help 130 Student Union 775-4000 (Bursar, Financial Aid and Registrar services for students)
Student Health 051 Student Union 775-2552	Student Legal Services W015 Student Union 775-5857
Student Activities W019 Student Union 775-5570	University Library -- Dunbar 126 Dunbar Library 775-2380
Wright One Card 055 Student Union 775-5542	Wright-Patt Credit Union E084 Student Union 775-5797
Writing Center – University 023R Dunbar Library 775-5750	

Buildings

AL	Allyn Hall
BS1	Biological Sciences I
BS2	Biological Sciences II
BCH	Boston/Cedar/Hawthorn
BL	Brehm Laboratory
CC	Community Center
CM	Campus Ministry Center
CS	Campus Services Building
CD	Child Development Center
CP	College Park Apartments
CA	Creative Arts Center
DG	Diggs Laboratory
DL	Dunbar Library, Paul Laurence
FH	Fawcett Hall
FB	Fine Arts Building
FL	Forest Lane Apartments
G	Garden for the Senses
GL	Geology Field Equipment Base
HH	Hamilton Hall
HC	Honors Community
HS	Health Sciences
JC	Joshi Research Center
LJH	Laurel/Jacob/Hickory
LX	Library Annex
MM	Mathematical and Microbiological Sciences
MS	Medical Sciences
MH	Millett Hall
NC	Nutter Center, Ervin J.
OMP	Oak/Maple/Pine
OH	Oelman Hall
RK	Rike Hall
RC	Russ Engineering Center, Fritz and Dolores
SU	Student Union
SZ	Setzer Pavilion/Mills-Morgan Center
TV	Television Center
TS	Transportation Services Center
UH	University Hall
UP	University Park Apartments
V	The Village Apartments
VP	Visitor Parking Booth
WH	White Hall (Boonshoft School of Medicine)



Notes: _____