BIOCHEMISTRY/BIOPHYSICS
TEXAS A&M UNIVERSITY

2015 – 2016
Graduate Handbook

Department Home Page
http://biochemistry.tamu.edu

Graduate Program Committee
Department of Biochemistry and Biophysics
Texas A&M University

Please submit any suggestions or corrections to, Rafael R. Almanzar, Senior Academic Advisor, Room 103C Biochemistry/Biophysics Building, (979) 845-1779

Welcome

Welcome to the Biochemistry Graduate Program at Texas A&M University. This *Ph.D. Handbook* describes Departmental and University policies of importance to Ph.D. students in biochemistry. This handbook is the official source of departmental policies for the graduate program. For University policies, while every attempt has been made to ensure that the policies described in this *handbook* are accurate, be advised that the TAMU Graduate Catalog for 2015-2016 is the authoritative source for University rules and regulations. Use this *handbook* as a source of guidelines and specific information, but not as a substitute for the advising and counseling functions of your individual research supervisor, the Graduate Program Committee (GPC) and the Office of Graduate and Professional Studies (OGAPS). http://ogaps.tamu.edu/

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FALL SEMESTER 2015

August 21-28 Friday-Friday	Orientation for first year incoming students
August 26 Wednesday	BGA Tea Time @ 3:30 PM in Bio/Bio lobby Departmental Seminar @ 4:00 PM in Bio/Bio room 108
August 29 Friday	Last day to register for fall classes and pay fees
August 31 Monday	First day of fall semester classes First Lab Rotation Preference Sheet due at 10:00 AM to Rafael
September 2 Wednesday	BGA Tea Time @ 3:30 PM in Bio/Bio lobby Departmental Seminar @ 4:00 PM in Bio/Bio room 108
September 4 Friday	First Lab Rotation Assignments Announced Last day for adding/dropping courses for the fall semester
September 7 Monday	First Lab Rotation begins
October 5 Monday	Second Lab Rotation Preference Sheet due at 10:00 AM to Rafael
October 9 Friday	Second Lab Assignments Announced
October 12 Monday	Second Lab Rotation begins
November 9 Monday	Third Lab Rotation Preference Sheet due at 10:00 AM to Rafael
November 16 Monday	Third Lab Rotation begins
November 13 Thursday	Pre-Registration for 2015 Spring Semester begins
November 18 Wednesday	Bonfire 1999 Remembrance Day
November 20 Friday	Last day for students to drop courses with no penalty (Q drop) Last day to officially withdraw from the university
November 25 Wednesday	Reading Day No Classes
November 26 & 27 Thursday-Friday	THANKSGIVING HOLIDAY
December 7 Monday	Redefined day, students attend their **Friday** classes
December 9 Wednesday	Last day of fall semester classes Redefined day, students attend their Thursday classes
December 10 Wednesday	Reading days, no classes
December 11, 14-17 Friday, Monday-Wednesday	Fall semester final examinations
December 14 Monday	Permanent Lab Preference Sheet due at 10:00 AM to Rafael
December 18 Friday	Commencement and Commissioning
December 21 Monday	Permanent Lab Assignments Announced
December 24 - January 1	Faculty and Staff holiday

SPRING SEMESTER 2016

January 4 Monday	First-year students report to permanent lab or arrange 4th rotation
January 15 Friday	Last day to register for spring semester classes
January 18 Monday	Martin Luther King Jr. Day, Faculty and staff holiday
January 19 Tuesday	First day of spring semester classes
January 25 Monday	Last day for adding/dropping courses for the spring semester (5 pm)
February 8-12	4th rotations end; Permanent lab assignments made
February 12 & 13 Friday-Saturday	Biochemistry Symposium/ Recruiting Weekend
March 17-18 Thursday-Friday	SPRING BREAK Holiday, Faculty and Staff
April 1 Friday	First-year students submit proposed thesis advisory committee to Graduate Program Committee
April 7-22	Pre-registration for the first term, second term, 10-week summer semester, and fall semester
April 15 Friday	First-year students begin to schedule Pre-Proposal Committee Meeting that will be held in summer; Meeting must be scheduled by May 16th
April 19 Tuesday	Last day for all students to drop courses with no penalty (Q-drop) Last day to officially withdraw from the University (5 pm)
April 21 Thursday	Muster, Campus Ceremony
May 3 Tuesday	Last day of Spring semester classes Redefined day, students attend their Friday classes. Classes meet, but no major exams
May 4 Wednesday	Reading day, no classes
May 5-6, 9-10 Thursday-Friday Monday-Tuesday	Spring semester final examinations for all students
May 12-14 Friday-Saturday	Commencement and Commissioning
May 16 Monday	Last day to schedule Pre-Proposal Committee Meeting

SUMMER SEMESTER 2016

May 27 Friday	Last Day to register for first term and 10-week summer classes
May 30 Monday	MEMORIAL DAY, Faculty and Staff Holiday
May 31 Monday	First day of first term and 10-week semester classes
June 3 Friday	Last day for dropping courses with no record for the first term and 10-week semester 5:00 PM Last day for adding courses for the first term and 10-week semester
June 20 Monday	Last day for all students to drop courses with no penalty for the first term (Q-drop). Last day to officially withdraw from the University for first term
July 1 Friday	Last day of first term classes
July 4 Monday	INDEPENDENCE DAY
July 20 Wednesday	Last day for dropping courses with no record for the 10-week semester (Q-drop) Last day to officially withdraw from the University for 10-week semester
August 8 Monday	Last day of second term and 10-week semester classes
August 9-10 Tuesday-Wednesday	Second term and 10-week semester final examinations
August 12 Friday	Commencement and Commissioning
August 19 Friday	Last day for first-year students PreP meeting to avoid registration block

All dates and times are subject to change

DEPARTMENT RESOURCES

Graduate Program Committee

Members of the Graduate Program Committee

Mary Bryk, Associate Professor & Chair Room 334A Biochemistry Building 979 862-2294 office 979 845-6982 lab **bryk@tamu.edu**	**Jennifer Herman, Assistant Professor** Room 305A Biochemistry Building 979 862-3165 office 979 862-3166 lab **jkherman@tamu.edu**
Jim Hu, Professor Room 443A Biochemistry Building 979 862-4054 office 979 862-4055 lab **jimhu@tamu.edu**	**Tatyana Igumenova, Associate Professor** Room N118A NMR Building 979 845-6312 office 979 845-6313 lab **tigumenova@tamu.edu**
Craig Kaplan, Associate Professor Room 322A Biochemistry Building 979-845-0429 office 979 845-0452 lab **cdkaplan@tamu.edu**	**Hays Rye, Associate Professor** **BGA Faculty Representative** Room 239A Biochemistry Building 979 862-1123 office 979 862-1125 lab **haysrye@tamu.edu**
James Sacchettini, Professor Room 2138A ILSB Building 979 862-7636 office 979 862-7639 lab **sacchett@tamu.edu**	**Junjie Zhang, Assistant Professor** Room 2157A ILSB Building 979 458-9882 lab **junjiez@tamu.edu**
Rafael R. Almanzar, Senior Academic Advisor Room 103C Biochemistry Building 979 845-1779 office 979 845-9274 fax **r.almanzar1@tamu.edu**	**Debbie Gau, Senior Secretary** Room 103A Biochemistry Building 979 845-1013 office 979-845-9274 fax **dgau@tamu.edu**
Kristina Najjar, BGA Representative Room 436 Biochemistry Building (Pellois Lab) 979 845-0101 lab **kristina.najjar@tamu.edu**	

The departmental Graduate Program Committee (GPC) is responsible for administering the biochemistry graduate program. Every member of the GPC has a strong interest in the success of graduate students. All students are encouraged to contact any member of the GPC with concerns or questions regarding the graduate program.

Biochemistry Graduate Association

Graduate students formed the Biochemistry Graduate Association (BGA) in 1992 to promote the welfare and improve the educational experience of graduate students in biochemistry and to enhance communication between graduate students and the faculty. The BGA is currently funded by Graduate Enhancement Program funds from student tuition and private donations. The BGA promotes direct involvement in departmental decisions to help improve the Biochemistry graduate experience. Problems encountered by a majority of students are often brought to the attention of the Department Head. A faculty member (chosen by the BGA) sits in on meetings in an advisory role only. In addition, the BGA appoints student representatives to the Graduate Student Council and to faculty committees, including the GPC and GRAC.

BGA meetings provide an opportunity to interact with graduate students from various labs and at different stages in the degree program. The meetings are to discuss problems and air grievances. Minutes and information pertaining to the organization or important to students are available from the BGA executive.

The BGA sponsors the following activities and services:

- Student Mentors: New first year students are assigned graduate student mentors.
- Dissertation Expenses: The BGA can pay some costs of producing the dissertation.
- Job Files: Postings are located in Room 203 near the student mailboxes.
- Programs: Presentations of specific interest to biochemistry graduate students, such as “How to look for a post-doctoral position” and career diversity seminars.
- Research Competition: Selected students present their research results to a panel of judges to compete for monetary prizes.
- Student-Sponsored Seminars: Students invite off-campus speakers to present departmental seminars.
- Travel Grants: Students may be awarded up to $600 per year to travel to scientific meetings.

Around the Department

Department Home Page **http://biochemistry.tamu.edu**

Graduate student mailboxes, Room 203

Office Staff Fax 979 845-9274

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Photocopy cards; key issuance, media/room reservations, lab, and help desk

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Room 103G Biochemistry and Biophysics Building
979 845-1435
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Payroll, key issuance

Office of Graduate and Professional Studies

The TAMU Office of Graduate and Professional Studies (OGAPS), located in suite 112 in the Jack K. Williams Administration Building, is responsible for overseeing all graduate students at Texas A&M University. Over the course of your graduate career there are several steps where OGAPS approvals are needed: when you submit your degree plan, when you turn in your checklist and signature sheet for your prelims, when you submit your proposal, when you schedule your final defense, and when you are getting ready to graduate. The relevant functions of the OGAPS are described in this handbook, and in the Graduate Catalog, available on the OGAPS web page. This website also has downloadable forms and relevant instructions required at various times during your graduate career. http://ogaps.tamu.edu/

International Student Services

International Student Services is located on the 1st Floor, The Pavilion, Room 110, and offers assistance to international students. For further information, call 845-1824 or visit: http://iss.tamu.edu/

Student Loans

The Student Loan Administration office is located in the GSC, Suite 2801. Office hours are Monday - Friday, 8:00 A.M. - 5:00 P.M. and offers both emergency loans for tuition and fees and short-term loans for expenses other than tuition and fees. Emergency loan applications must be completed online via a valid Texas A&M "neo" email account. For further information on student loans and financial aid, call 979-845-3236 or 979-845-3987 or visit: https://financialaid.tamu.edu

Student Health Insurance

Teaching and research assistants are considered TAMU employees and receive medical insurance through TAMU. Students should sign-up for insurance during orientation.

Students on fellowships and training grants are not considered TAMU employees and need to obtain their own health insurance. Students with fellowships have the option to purchase health insurance through the Texas A&M System. Contact the department accounting office (979-845-6848) to obtain information on health insurance and reimbursement.

International students require additional health insurance for evacuation and repatriation.

Information about health insurance is available through the Human Resources at http://employees.tamu.edu/benefits/grad-students/
and the Texas A&M System at: https://tamu-gradempl.myahpcare.com/

UNIVERSITY AND DEPARTMENTAL POLICIES

The Texas A&M University System and the Department of Biochemistry and Biophysics have a strong commitment to equal employment opportunity, without regard to race, color, sex, religion, or age.

THE DOCTORAL PROGRAM

The primary objective of the graduate program in Biochemistry and Biophysics is to prepare graduates for success in future careers through Ph.D. level, independent mastery of biochemistry and its application to molecular, cellular, and biophysical questions. Such mastery is only part of becoming a well-rounded and competitively prepared member of the workforce. To make sure our students are as competitive as possible, we have designed our program curriculum and mentoring framework to allow students to achieve the following objectives within a five year or less timeframe.

We envision our graduates to:

- Gain and demonstrate broad understanding of biochemical and molecular biological principles
- Achieve extensive expertise in a specific research area exemplified by Ph.D.-level research.
- Through coursework, designed curriculum-related activities, and individual research programs obtain communication, teaching, and critical-thinking skills.
- Experience how scientific research programs are developed, organized, and funded.
- Develop written and oral communication skills, each of which will be enhanced by opportunities within the program for scientific writing, scientific communication, manuscript and thesis preparation, and presentations at local and national scientific meetings.
- Participate in activities that develop and reinforce professional skills, such as teaching certificate programs, internships, and workshops.
- Obtain a network of faculty and graduate student contacts with a knowledge base of both academic and industry science.

A fundamental goal of the program is that each student achieves balanced competency in the various aspects of biochemistry, such as physical biochemistry and molecular genetics. In addition to substantial course offerings and a wide variety of research opportunities, the Ph.D. program offers informal, intensive instruction with close contact between students and faculty advisors. The Ph.D. degree is primarily based on original research. Coursework, the Pre-proposal committee meeting, and the preliminary examination are designed to prepare students for work in the laboratory and to help the GPC and faculty evaluate student progress toward a degree.

Below is a brief version of a typical graduate career in our department. The *Handbook* provides explanations of the listed items.

First Year

Core coursework
Three laboratory rotations
Join a laboratory
Select members of thesis advisory committee
Prepare and submit online degree plan
Pre-proposal committee meeting (summer, end of 1st year)

Second Year

Elective coursework
Journal club participation
Teaching

Third Year

Dissertation proposal and preliminary examinations (fall semester)
Admission to candidacy
Journal club participation

After Third Year

Annual advisory committee meetings
Journal club participation
Ph.D. dissertation
Dissertation defense
Graduation

A Ph.D. degree for a student without a master's degree in biochemistry from a U.S. college or university requires at least 96 hours of credit. This total is accumulated through traditional coursework, journal clubs, seminars, and research. A Ph.D. degree for a student with a master's degree in biochemistry from an U.S. college or university requires at least 64 hours of credit. No courses counted for credit toward the master's degree can be included in the 64 hours. Transfer courses are acceptable on the degree plan with the approval of the student's advisory committee, the Graduate Program Committee, and the Office of Graduate and Professional Studies.

FIRST YEAR

Prerequisites

Incoming students should have undergraduate training in biological, chemical, mathematical and physical sciences. Specifically, most of our first-year students will have taken and passed the following courses:

- A two-semester course in Biochemistry (equivalent to BICH 410/411 at TAMU)
- A one-semester course in Physical Chemistry (equivalent to CHEM 328 at TAMU)
- A one-semester course in Molecular Genetics (equivalent to BICH/GENE 431 at TAMU)
- Two semesters of Organic Chemistry
- One semester of Physics
- One semester of Calculus

These background courses are essential for students in the doctoral program. Students lacking any of these prerequisites will likely be required to enroll in the necessary course during the first year or during the summer prior to the first year and earn a grade of "C" or above. Students who need to fulfill Physical Chemistry or Molecular Genetics requirements have the option of taking the classes in the Fall of the first semester. Students are expected to attend all of the classes, take all of the exams, and receive a grade of "C" or better.

Orientation

Seven days before the start of the fall semester is designated for Orientation. During this period the department schedules activities to familiarize new graduate students with University policies, procedures, and regulations radiological and laboratory safety, and to complete paperwork for payroll and employee benefits. Attendance at orientation meetings is required of all students.

If you have more than one C, or if your grade point average is below 3.0, you may be not be allowed to proceed in the Ph.D. program.

English Language Requirement for International Students

The Department of Biochemistry and Biophysics has resources available for graduate students preparing for their English Proficiency exam. Because all Biochemistry graduate students are required to pass four sections of the English Language Proficiency Examination (ELPE), every effort is made to help students become aware of these resources in order to safeguard and ensure their success. Any student who would like assistance preparing for the ELPE can contact the English Language Institute (ELI), which has a multitude of courses, instructional materials and other resources, to help international students become proficient in the English language.

The English proficiency of students whose primary language is not English must be certified before they are eligible to serve as Teaching Assistants (TAs). Certification can be obtained in any of four ways:

1. Scoring at least 80 on each of the four required sections (see below) of the English Language Proficiency Examination, or
2. Obtaining grades of A or B in English Language Institute courses at the 300 level or higher, or
3. Being certified through the TAMU Office of Graduate and Professional Studies, or
4. Receiving a bachelor's degree after four years of study at an accredited US institution.

Graduate students must begin to take English Language Institute courses (in at least one of the areas not yet passed) as early as possible at Texas A&M University. The requisite English Language Institute courses will be determined for each student on a case-by-case basis.

Graduate students will be allowed to take a combination of Texas A&M and English Language Institute courses up to a total of 15 hours in fall and spring semesters and up to a total of 12 hours for a 10-week summer semester. Graduate students must pay for the English Language Institute courses. Graduate students may request to re-take the English Language Proficiency Examination through the graduate academic advisor. Retesting cannot be done within three months of the most recent attempt. For more information, please visit the English Language Institute website at: http://eli.tamu.edu/

English Language Requirement Resources

The English Language Proficiency Examination contains 6 segments:

- Oral Skills Assessment
- Composition (Writing) Skills Assessment
- Reading Comprehension
- Listening Comprehension
- Grammar
- Vocabulary

A passing score for graduate students is **at least 80 on four sections** (Oral Skills Assessment, Composition (Writing) Skills Assessment, Reading Comprehension, and Listening Comprehension).

The English Language Proficiency Examination is administered by Data and Research Services of Texas A&M University. For the English Language Proficiency Examination schedule and registration, please visit: http://dars.tamu.edu/Testing/ELPE

Preparing for the English Language Proficiency Examination

Some reference materials for the ELPE are located at the Sterling Evans Library at Texas A&M University. Books are on reserve at the Reserve Desk and audiotapes can be checked out from the Learning Resource Center.

Here is a link to resources provided by International Student Services
http://iss.tamu.edu/Current-Students/Resources/English-Language-Proficiency-Exam-%28ELPE%29#0-HowtoPrepareforTheELPE

Prior to the Fall and Spring semesters, there is an ELPE Practice Session. The link below will bring you to a webpage with more information.
http://iss.tamu.edu/Events/ELPE-Practice-Session

A link to the English Language Institute at Texas A&M University is:
https://eli.tamu.edu/

The Michigan Test Battery is an English Language proficiency exam with some sections that are similar to those in the ELPE. You may find resources by doing an online search for Michigan Test Battery. Recall that the sections of the ELPE on which graduate students must score 80 or higher are Listening Comprehension, Reading Comprehension, Oral Skills Assessment, and Composition (Writing) Skills Assessment.

Courses

During orientation, each student will meet with a GPC member to determine the courses they will take during the first year. Incoming students will be able to register for fall semester classes after all blocks have been removed. If your GPC advisor recommends changes in your course enrollment, see the graduate academic advisor in Room 103C of the Biochemistry Building or call the office at 979-845-1779.

Students who have completed all of the prerequisites will have the schedule shown on the next page. You must register for at least 9 credit hours in both the fall and spring semesters. You are required to maintain an average GPA of 3.0 or better, **with no more than one "C"** in the required biochemistry courses.

Typical First-Year FALL Course Schedule

Course #	Title	Description	Credit Hours	
*BICH 603	General Biochemistry	Metabolism and regulation, biochemical thermodynamics, kinetics	3	Required
BICH 605	Methods of Biochemical Analysis	Electrophoresis, chromatography, spectroscopy; Molecular biology methods	3	Required
BICH 608	Critical Analysis of Biochemical Literature	Analysis of biochemical literature, oral presentation skills	2	Required
BICH 685	Directed Studies	Three lab rotations (register under Dr. Bryk's section)	1	Required

Typical First-Year SPRING Course Schedule

Course #	Title	Description	Credit Hours	
BICH 681	Seminar	Original articles in biochemistry and related fields designed to broaden understanding of problems in the field and to stimulate research.	1	Required
BICH 624	Enzymes, Proteins and Nucleic Acids	Chemical and physical properties of proteins & nucleic acids, thermodynamics & mechanisms of protein/nucleic acid interactions	3	Required
BICH 631	Biochemical Genetics	Mechanisms of gene expression, structural organization of genomes, biochemical manipulation of genetic molecules	3	Required
BICH 685	Directed Studies	register under Dr. Bryk's section	1	Required
BICH 685	Directed Studies	register under advisor's section	1	Required

**Incoming students who need Physical Chemistry will enroll in CHEM 328 during the fall semester and will audit BICH 603; their BICH 603 grade will be reported to the GPC and will officially enroll in BICH 603 in the fall semester of their 2nd year. Students who have not taken a Molecular Biology or Molecular Genetics course should audit BICH 431 during the fall semester and their grade will be reported to the GPC.*

Evaluation of First-year Students

Students are evaluated by the GPC in the middle and at the end of the first semester, and at the end of the second semester. Grades in courses (midterm and final) as well as rotation grades and rotation reports are used to evaluate student progress in the first semester. Grades in second-semester courses and input from the research advisor are used to evaluate student progress in the second semester.

Lab Rotations (for additional guidance, see '**Advice for Selecting Rotation Labs and a Permanent Lab**' below the next section)

As part of the process of selecting a research advisor, you will participate in three lab rotations in your first semester. The rotations begin early in the fall semester and end in December. The exact dates are indicated on the Graduate Student Calendar. Rotations offer exposure to different fields of biochemistry. They also allow you to experience the research environment of a specific lab before making a commitment to do doctoral research there. It is also a period for the laboratory to determine the motivation level and abilities of the student. ***The decision to accept a student into the lab is largely based on performance in the rotation.***

Your first consideration in choosing a lab should be the scientific activities and environment in the particular laboratory, but it is also important to inquire about the future availability of laboratory space and stipend support. To get an idea of the research activities in each lab, students are required to attend the departmental "Poster Session" and "Faculty Research Talks" held during orientation.

A letter grade is given for each rotation and the faculty will also submit a written report of your rotations to the GPC. These reports are based on several elements, including time commitment, enthusiasm, perseverance, and interactions with laboratory personnel. The rotation reports and rotation grades are considered in the first-semester evaluations (see below). Because the Ph.D. is primarily a research degree, productive and interactive lab rotations are important in setting a positive course for your career as a research scientist.

One week before each rotation, each student is expected to submit a written preference list of **four** faculty names, in ranked order, to the graduate academic advisor. Preference forms will be delivered to your mailbox in room 203 in the Biochemistry building. You are required to communicate with the four faculty members listed on your preference form before submitting the form. If you have already rotated in a lab, do not include that lab on your preference list for a subsequent rotation. The GPC will assign rotations according to the preference lists, subject to the approval of the faculty involved and the rule of assigning no more than two students in one laboratory per rotation.

Even if you arrive for your first semester of graduate school knowing the lab group you want to join for your thesis research, it is important to use the rotation process to find your best possible back-up choices. Keep in mind that individual faculty members usually take only one or two new students per year.

A student who enters the program with a Master of Science degree from a United States university or equivalent, and has arranged to pursue the doctoral degree under a specific faculty member before accepting our offer of admission may be excused from rotations with the permission of the GPC. These arrangements must be approved by the GPC.

Selection of Research Advisor (for additional guidance, see '**Advice for Selecting Rotation Labs and a Permanent Lab**' directly below this section)

Before the end of the fall semester, each student should meet with prospective research advisors to determine if there is room in the lab for a new student and to discuss possible research projects. A ranked list of three choices for a research advisor is to be turned in by the date indicated on the calendar to the Graduate Program Office. Generally, no more than two first year biochemistry Ph.D. students may join the same laboratory. To ensure that all students have equal access to faculty mentors, students do not make arrangements to join a lab directly with individual faculty. After a student joins a lab, stipend support for that student becomes the responsibility of the research advisor on June 1st. All advisors pay students the amount set by the department. It is the responsibility of all faculty, and particularly tenured faculty to provide support for students accepted into their laboratories. Therefore, it is the policy of the Department of Biochemistry and Biophysics that tenured faculty who accept a biochemistry graduate student as a Ph.D. mentee are responsible for financial support of that student for the subsequent 12 months.

Advice for Selecting Rotation Labs and a Permanent Lab

Start by deciding what research you find interesting

- Visit faculty webpages to get a sense of the breadth of research areas in the department. Don't be afraid to step out of your comfort zone into less familiar areas. Learning about research areas that you are not familiar with is an important aspect of graduate education.
- Read papers being published by the labs you find interesting. This will help you learn about the research area and the techniques used in each lab. Reading papers may help you find review articles and perspectives articles to deepen your knowledge of the field.
- Speak to the faculty members in whose labs you might want to rotate.
- Speak to graduate students, postdoctoral associates, research assistants and other members in the labs to learn more about the research, the lab environment, and the advisor's style.

During the rotation and when deciding on a thesis lab

- Determine if the research area engages you. You will be working on a project in this research area for the next 4-5 years. Does the research make you want to get to the lab early and stay late? This is often a good measure of your interest.
- Do you like the style and availability of the faculty member/advisor? Do you want a faculty advisor who is available on a daily basis or one who has a more 'hands-off' mentoring approach?
- Do you feel comfortable talking with the faculty advisor? When you ask questions, are you given answers and explanations that you understand? Are you able to discuss alternative ideas and make dissenting arguments with the faculty advisor?
- You may want to take courses or workshops related to teaching, grant-proposal writing, business, etc., as a graduate student. Will the faculty advisor allow you to pursue your professional development needs beyond research?
- Does the lab environment suit you? Can you see yourself as a member of the research group? Are lab members helpful? Are you comfortable communicating with lab members and are those conversations productive?
- Talk with others in the lab to determine how students, postdocs and research assistants like working in the lab. How long does it take to earn a Ph.D.? Do lab members receive the attention needed to help projects advance?
- Ask lab members if they are allowed to try new things and design their own experiments.
- Do lab members have their own projects or work in teams on the same project? If teams, do they work collaboratively? How is authorship determined?

Select a permanent thesis lab

- Speak with the faculty advisor to find out if there is space in the lab, if there is funding for you, and what projects are available.
- Ask the faculty advisor if she/he will consider taking you in their lab. The "fit" of a student in a lab is a two-way street. Both student and advisor need to agree that the advisor's lab is the right place for the student. You should not assume that if you choose a lab, that lab will choose you. Communication is paramount when selecting your thesis lab.
- Ask about their style and speak to others in and outside the lab to learn more.

How student-lab matches are made

- After the third rotation, students submit a ranked list of labs they would like to join to the Graduate Programs Office.
- Faculty members submit a ranked list of rotation students.
- The graduate academic advisor makes 1-to-1 matches. Student choices are given priority.

- The graduate academic advisor calls each faculty member with the name of student(s) who have indicated interest in the lab. Faculty member decides which students they will accept in their lab.

Fourth rotation

- For students in good standing, a fourth rotation will be granted. For students with one or more Cs in first-semester coursework, or who are otherwise compromised in their good standing, the option of a fourth rotation will be voted upon by the GPC.
- Students who need to do a fourth rotation should contact faculty members to schedule meetings to discuss the possibility of a fourth rotation. Once a student and faculty member confirm a fourth rotation, the Graduate Program Office should be notified by the faculty member. Fourth rotations should start no later than one week in January after returning from the holiday break.

Seminars

All biochemistry graduate students are expected to attend the regular departmental seminars, which are held in room 108 at 4:00 PM each Wednesday during the fall and spring semesters. These seminars provide graduate students with an excellent opportunity to learn about research being done around the country. After each seminar, graduate students have the opportunity to meet with the seminar speaker in an informal atmosphere in the absence of faculty.

Scientific Meetings

Attending scientific meetings is an integral part of being a professional scientist. Researchers learn about the latest results before they are published, exchange ideas and make professional contacts. Departmental funding is available for first-year students to attend the Texas Protein Folders Meeting (http://txfolders.tamu.edu/index.php?page=home) or other regional meetings in the spring of the first year. In addition, the BGA awards travel grants that allow senior Ph.D. students to attend national scientific meetings. Students need to apply to the BGA for these competitive travel grants when the call for applications is announced.

Advisory Committee

Upon entering a laboratory, the student forms a thesis advisory committee. The composition of the thesis advisory committee must be proposed to the GPC. Students should submit a list of the proposed committee members to the Graduate Programs Office by April 1, 2016 (see form in appendix). The thesis advisory committee must consist of four members of the graduate faculty in the student's field of study and research. The committee members should reflect a broad biochemical perspective. Three members, including the chair or co-chair, must be from the Department of Biochemistry and Biophysics, and one member must have a primary appointment in a department other than the Department of Biochemistry and Biophysics. If the chair of the

advisory committee is an associate member of the Department of Biochemistry and Biophysics, one of the three full members must be named as co-chair. Advisory committees will be approved by the GPC by mid-April.

Once formed, the thesis advisory committee must meet during the summer of the first year (Pre proposal meeting, see below) and then once each academic year. Students are encouraged to use Doodle, an online scheduling tool that can be used to find a date and time that is compatible with each committee member's schedule (http://www.doodle.com). The graduate academic advisor must be notified of the annual advisory committee meeting so required forms (Ph.D. Advisory Committee Evaluation form and the Student Self-Evaluation form) can be distributed to the student and faculty advisor. **Graduate students must bring copies of the Ph.D. Advisory Committee Evaluation form, a completed Student Self-Evaluation form, and an updated *Curriculum Vitae* to every annual committee meeting.** The Ph.D. Advisory Committee Annual Report (see Appendix) must be completed by each committee member at this meeting and filed with the Graduate Programs Office. The graduate academic advisor will block registration for any student whose records do not contain annual report forms from the past 12 months.

Pre Proposal (PreP, pronounced Prep-E)

The PreP meeting is a special committee meeting that is held during the summer of the first year in the Biochemistry Ph.D. program. The goal for the Pre Proposal is to engage students in their doctoral research project and other research-related activities early in their graduate career. The Pre Proposal encourages students to develop an understanding of their research objectives, methodology, data analysis, and appreciation for how their work will fit into the larger field of study.

To prepare for the Pre Proposal students are expected to:

- Read literature relevant to their research focus in depth
- Discuss their research with experts in their field (advisor, students in the lab, other scientists on and off campus)
- Work purposefully in the lab with guidance from the advisor and lab members in a manner that promotes understanding of methodology, controls, analysis, limitations, etc.
- Participate in opportunities to develop skills and confidence in preparing and making presentations at lab meetings, journal club, seminar class, etc.
- Learn how their work fits into 'the big picture'

By focusing on dissertation research during the spring semester of the first year, Biochemistry first-year students will be in a position to prepare a proposal that will be useful immediately and in the future.

Advisory Committee:

1. 1st year student submits a list of proposed committee members to the GPC by **April 1, 2016**. GPC will approve or suggest modifications. This process is expected to be complete by mid-April.

2. PreP meeting requires a GPC member be in attendance as chair. The GPC member will be appointed by the GPC. A thesis advisory committee member who is also a GPC member can fulfill this role. The advisor, regardless of membership on GPC, cannot fulfill this role.
3. The PreP meeting chair will guide the meeting with the input of the committee and act as a scribe for the generation of feedback to the student (full committee input expected).
4. Members of the PreP committee (advisor, thesis advisory committee members and GPC member) are not to answer questions posed to student. If needed, clarifying questions/remarks may be addressed by the chair or committee members
5. After the PreP meeting, the oral preliminary exam meeting and subsequent annual committee meetings do not require a GPC member.

Scheduling:

1. The PreP meeting should be scheduled by May 16th, 2016. The PreP meeting will be held during the summer and should be completed by the end of the third week in August. If scheduling the summer PreP meeting with your normal thesis advisory committee is not possible, a Bio/Bio faculty member may be used as a substitute committee member for the PreP meeting. A GPC member will be assigned to act as Chair for each PreP meeting.
2. Student has the option of having a committee meeting (with their approved thesis advisory committee) prior to the PreP meeting.
3. Registration will be blocked if the PreP meeting is not completed by the end of the third week in August.

Required materials for the PreP meeting:

Items 1-5 should be submitted in electronic format to the Biochemistry Graduate Programs Office, the thesis advisor, committee members and the GPC member (PreP meeting chair) **two weeks before** the scheduled PreP meeting.

1. Cover page/Honor statement - Title of Pre-Proposal, student's name, lab, date, honor statement verifying with signature that the written Pre-Proposal is the student's own work.
2. Written Pre-Proposal - format similar to the NIH F31 graduate fellowship research plan; up to 6 pages, single-spaced (the page limit does not include references). The written proposal must be the student's own work (no pasting of your advisor's proposals)
    i. 1 page Abstract/Aims
    ii. 1 page Background and Significance
    iii. 2-3 pages Approach (Discussion of rationale, methods, proposed experiments, and preliminary data)
    iv. 1 page Student's contribution to the research plan and a discussion of the student's long-term goals/career goals. The GPC encourages all graduate students to prepare an Individual Development Plan to define their career goals. To get started, visit the myIDP site: http://myidp.sciencecareers.org/
3. Curriculum Vitae – the GPC requires that each student establishes a myNCBI account and uses the SciENcv builder
4. Annual Graduate Student Self-Evaluation form

5. Draft Degree Plan with grades (the advisory committee should have access to rotation grades and evaluation forms, as well)
6. Lab notebooks – the student's lab notebooks (physical or electronic) should be brought to the meeting as a resource for the student to use during the question period.
7. Slideshow – Student will give a 20-minute presentation. The student should expect to be interrupted with questions during the slide presentation but practice talks without interruptions should be no longer than 20 minutes. Guideline: One slide/minute.

The PreP meeting and assessment:

1. At the PreP meeting, the student will make an oral presentation with slides. Questions will be posed by PreP committee members. It is expected that the oral presentation with slides and questions on completed research, proposal, methodology, and student's contributions should last ~ 50 minutes.
2. Additional questions to student about ~10 minutes, may include discussion of:
    a. career goals
    b. plan for professional development
    c. clarification of research plan
3. Each committee member will be given a PreP evaluation form to complete during the meeting.
4. The GPC member acts as the scribe to summarize the comments of committee members in order to provide written feedback to the student.
5. The thesis advisor, committee members, and GPC member are not to answer questions posed to the student (unless scientific clarification is required). *Generally, the meeting chair or a committee member will request clarification. The purpose of this rule is to encourage student responsibility for scientific content, to evaluate the student's knowledge and understanding, and to determine what areas will require improvement.*
6. After the presentation and question period, the student leaves the room; the GPC member and committee members prepare a formative assessment of the student's progress in the program.
7. Student returns to room for verbal summary of committee's assessment.

Post-PreP Feedback:

Two weeks after PreP committee meeting, a written summary of performance (prepared by GPC member, and reviewed by thesis advisor and thesis advisory committee members) will be available to the student in the Biochemistry Graduate Program Office.

BEYOND THE FIRST YEAR

Continuing Registration

After joining a lab, students enroll in BICH 690 "Theory of Biochemical Research" (weekly lab meetings), a journal club every fall and spring semester, and enough credits of BICH 691 "Research" every semester to total 9 credit hours during fall and spring semester and 6 credit hours during the summer. Check with the Graduate Programs Office to determine the appropriate sections.

Degree Plan

The degree plan serves to establish the official advisory committee and states the coursework for the doctoral degree. The University requires the degree plan to be submitted to the Office of Graduate and Professional Studies (OGAPS) http://ogaps.tamu.edu/Buttons/Resources-for-Degree-Completion - 0-SubmitDegreePlan upon formation of the advisory committee and before the end of the spring semester of the 2nd year. To be eligible to schedule the preliminary exam, a student must have completed all but six hours of formal coursework on his or her degree plan, not counting *Research* BICH 691 coursework. This rule affects how you design your degree plan. The degree plan should be formulated at the first meeting of the student's advisory committee, which should be scheduled before or during the summer of the first year. If the advisory committee later determines there is sufficient reason to alter the plan of coursework, petitions to change your degree plan should be submitted through the Graduate Program Office to OGAPS, who can make the changes to the official degree plan. A representative degree plan is included in the Appendix.

Tuition 7-Year Cap

A doctoral student will be allowed to pursue his/her program for seven calendar years before a charge of out-of-state tuition. For count purposes, a year is counted as three semesters, normally fall, spring and summer. Using this system, a student is allowed 21 semesters as a G8 student to complete the doctoral degree before penalized with the higher tuition rate. Any semester in which a G8 student is enrolled for a doctoral level course is counted. Please note that the tuition increases will apply to Texas residents as well as students from other states and countries who currently are charged tuition at the resident rate.

Full Course Waiver

When students have only their defense to complete and will not be on Texas A&M payroll the entire spring or summer semester, he/she may register for one credit hour of BICH 691 and be reclassified as a Research Assistant on wages. This is a one-time appointment for three and a half months. This will not be allowed during the fall semester.

Elective Courses

In addition to the required courses, students are required to complete 6 credit hours of elective coursework at the graduate level or in an approved 400 level course. More information about approved electives can be found in the appendix. Pre-requisites for core courses, such as BICH 411, CHEM 328 and BICH 431, cannot be counted as electives.

Journal Club

To assure continued practice in oral presentation skills and to encourage a broad exposure to current literature, all students are required to register for one credit of Journal Club coursework every fall and spring semester. Several journal clubs (see Appendix) covering various areas of biochemistry and related topics meet regularly during the academic year.

Annual Leave

The department policy is that graduate students are entitled to two weeks of paid vacation per year, in addition to normal state employee holidays. If a student takes additional time off, their PI may place the student on unpaid leave.

Typical 2nd-Year Course Schedule

Fall Semester		**Title**	**Credit Hours**
REQUIRED	BICH 6**	Journal Club*	1
REQUIRED	BICH 690	Theory of Biochemical Research	2
REQUIRED	BICH 691	Research	1-5
REQUIRED	BICH 697	Teaching	1
		Electives*	1-3
		Total	9
Spring Semester		**Title**	**Credit Hours**
REQUIRED	BICH 690	Theory of Biochemical Research	2
REQUIRED	BICH 691	Research	1-6
REQUIRED	BICH 6**	Journal Club*	1
REQUIRED	BICH 697	Teaching	1
		Electives*	1-3
		Total	9
Summer Semester		**Title**	**Credit Hours**
REQUIRED	BICH 691	Research	6
		Total	6

Typical 3rd-Year and beyond Course Schedule

Fall Semester		**Title**	**Credit Hours**
REQUIRED	BICH 690	Theory of Biochemical Research	2
REQUIRED	BICH 691	Research	1-6
REQUIRED	BICH 6**	Journal Club*	1
		Total	9
Spring Semester		**Title**	**Credit Hours**
REQUIRED	BICH 690	Theory of Biochemical Research	2
REQUIRED	BICH 691	Research	1-6
REQUIRED	BICH 6**	Journal Club*	1
		Total	9
Summer Semester		**Title**	**Credit Hours**
REQUIRED	BICH 691	Research	6
		Total	6

***See the Appendix for Electives and Journal Clubs

Teaching

Students are required to serve as Teaching Assistants (TAs) during their graduate career. All students are expected to teach two semesters. If a student is supported fully by a fellowship or training grant in the first year, then the GPC will consider a request for the student to teach only one semester. During the semesters when serving as a TA, the student must register for BICH 697 "Teaching Biochemistry Laboratory" and successfully complete the TA training through Center for Teaching Excellence (CTE) during the summer before starting their 2nd year.
For more information:
http://cte.tamu.edu/Graduate-Student-Support/Teaching-Assistant-Institute

The instructor, for whom the student is serving as an assistant, will assign the TA duties. Typically, biochemistry graduate students will be assigned TA duties in either an undergraduate lab course or in a recitation section for a lecture course.

International students serving as TAs must have certification in English proficiency. (See "English Language Requirement.")

Candidacy

A student must meet the following requirements to be admitted to candidacy.

- Has completed all formal course work on the degree plan with the exception of any remaining BICH 691.
- Has a 3.0 Graduate GPR and a Degree Plan GPR of at least 3.0 with no grade lower than C in any course on the degree plan.
- Has passed the written and oral portions of the preliminary examination.
- Has submitted an approved dissertation proposal.
- Has met the residence requirements.

Residence Requirements

Students who enter the doctoral degree programs with baccalaureate degrees must spend two academic years in resident study. Students who hold master's degrees when they enter doctoral degree programs must spend one academic year in resident study. Having met these requirements, the student is admitted into candidacy for the Ph.D. degree at the beginning of the next academic semester.

Unaccounted absences

Please note that students who choose to leave Texas A&M University for personal reasons for longer than one full workday should inform their faculty mentor. This is a good practice that will help to maintain open channels for communication within the lab.

Dissertation Proposal and Preliminary Examinations

All students must complete preliminary examinations and have an approved dissertation proposal as part of the Ph.D. requirements. The department requires that students complete their preliminary examinations by the end of the fall semester of their third year. In the Biochemistry Ph.D. Program, discussion and approval of the dissertation proposal is part of the oral preliminary exam.

To be eligible to schedule the preliminary examinations, you must have an official grade point average of at least 3.0 and be within 6 credit hours of completion of the formal coursework listed on the degree plan excluding Research BICH 691 hours. A student first schedules the times of the written and oral exams. The schedule must be finalized at least three weeks before the date of the first written examination. When scheduling preliminary examinations, keep in mind that getting all the members of the advisory committee together at the same time and place requires planning well in advance. Once the schedule is set, the student MUST fill out the "Preliminary Examination Checklist" form. The student will then need to obtain the committee chair's signature on the "Preliminary Examination Checklist" form. The student will give the signed checklist to the graduate academic advisor to obtain the department head's signature. The student MUST take the "Report of the Preliminary Examination" form to the preliminary examination for the advisory committee to sign. When completed, the signed forms should be submitted immediately to the graduate academic advisor for further processing. The graduate academic advisor will submit the "Report of the Preliminary Examination" and the "Preliminary Examination Checklist" forms to the Office of Graduate and Professional Studies. The Office of Graduate and Professional Studies will then do a post-review of the examination and the eligibility requirements. To be admitted for candidacy, the student is encouraged to include a copy of their research proposal with their Preliminary Examination forms to the graduate academic advisor.

Dissertation Proposal

A dissertation proposal documenting the research project must be prepared and submitted to the advisory committee at least two weeks prior to the preliminary examinations. The dissertation proposal defines the scientific problem you will study for your dissertation research. The dissertation proposal is a description of proposed research, so that it can be prepared as soon as the overall research plan is developed. There is no requirement or expectation that a proposal will contain significant preliminary data.

The proposal should explain the rationale, approaches and the methodology you will use in your dissertation research. The format of your dissertation proposal document is likely to be similar to the format of the pre-proposal document you prepared for your PreP meeting. Although the research plan for an NIH fellowship application is typically 6 pages in length and single spaced, give your committee members a double-spaced copy so there is space to write comments and suggestions. A well-written proposal is organized according to National Institutes of Health (NIH) Grant Guidelines and should include three major sections: **Specific Aims** (1 page), **Research Strategy** (5-6 pages) containing **A**. **Background and Significance**, **B**. **Innovation**, **C. Approach** (for each Aim or sub-aim, include a section on i. Experimental Design, ii. Anticipated Results & Interpretation, and iii. Potential Pitfalls, Alternative Approaches & Future Directions, and **Literature Cited** (no page limit, for multi-author references, provide a list of up to 6 authors).

Submit one copy of your proposal with the signed "Proposal Approval Page" form to OGAPS. The student should sign the Proposal Approval Page, as well as all the members of the advisory committee and the Department Head.

• Specific Aims

Answer the question "What do you intend to do?" State the broad, long-term objectives and list concisely and realistically what the specific research described in this application is intended to accomplish and hypotheses to be tested. **One page is recommended.**

• Background and Significance

This section should answer the questions "What has already been done?" and "Why is the work important?" Briefly sketch the background to the present proposal, critically evaluate existing knowledge, and specifically identify the gaps that the proposed research is intended to fill. State concisely the importance of the research by relating the specific aims to the broad, long-term objectives. **One to two pages are recommended.**

• Approach

Explain how you will do the work. Feel free to use figures and diagrams to explain the background material or how certain kinds of experiments will be done. Outline the experimental design and the procedures to be used to accomplish the specific aims of the project. The experimental section of a proposal should not be detailed description of protocols that you would expect to find in the *Materials and Methods* section of a paper. Rather, it should focus on how the data will be collected, analyzed, and interpreted. Describe any new methodology and its advantage over existing methodologies. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. Provide a tentative

sequence or timeline for the investigation. Inclusion of an additional section describing preliminary results you have obtained may be appropriate. It is recommended that this section be placed at the beginning of the Approach section and be named 'Preliminary Results'.

The total for the Background, Significance and Approach sections of your proposal should not exceed 6 pages single-spaced in an 11-point font.

- **Literature Cited**

Use references to support statements or concepts. List your references at the end of your proposal rather than throughout the text. Each citation must include the names of all authors (or at least up to six), the title of the article or book, the name and volume number of the journal, page numbers, and year of publication. The list should be relevant and current; it need not be exhaustive.

You are expected to have read and understood all, or the pertinent parts, of each reference listed. References may be organized in any consistent fashion; for example, list in order of appearance and number consecutively in the text, or cite the authors in the text and list the references alphabetically by author.

• Preliminary Examinations

The preliminary exams have two parts: written and oral. The written exams are usually scheduled 1-2 weeks before the oral exam, with each member of the committee allotted one day. Each member of the advisory committee gives the student a written examination. An individual committee member may choose to waive the written exam. The student should discuss the format of each exam beforehand with the respective committee members. In any case, all written exams and the oral exam must be completed in a time period of no more than three weeks.

Because the oral portion of the preliminary exam deals primarily with scientific principles, techniques, and issues raised in the proposal, you must submit a draft of the proposal to each member of your advisory committee no less than two weeks prior to the oral portion of the exam. Although the proposal is the focus of both the written and oral exams, the student is expected to be able to discuss related fields and different experimental approaches to related problems.

Upon successful completion of all written exams, the oral examination may be taken. The oral examination usually focuses on a defense of the dissertation proposal. The oral exam also gives committee members the opportunity to follow up on questions that arose during the written exams. A typical oral exam begins with a discussion of the written exams with the student out of the room. The student then gives a presentation of the proposal that will be interrupted by questions from the

committee. At some point, the student will be asked to leave again and the committee will discuss the student's performance. A positive vote by all members of the graduate committee with at most one dissention is required to pass the preliminary exams.

Upon completion of the oral exam, the student or the chair (your thesis research advisor) will submit the signed Report of the Preliminary Examination immediately to the graduate academic advisor for further processing. The graduate academic advisor will submit the Report of the Preliminary Examination and the Preliminary Examination Checklist to the Office of Graduate and Professional Studies. To be admitted for candidacy, the student must include their research proposal with their Preliminary Examination to the graduate academic advisor. The Office of Graduate and Professional Studies will do a post-review of the examination of the dissertation and the eligibility requirements. The examination results should be reported whether or not final changes on the proposal have been approved. If necessary, the revised approved proposal and proposal approval page form, signed by all members of your advisory committee and the Department Head, will then be sent to the Office of Graduate and Professional Studies.

In the event that the student fails to pass either portion of the preliminary examinations, the advisory committee may elect to reschedule that portion of the preliminary examinations after at least six months of additional preparation. Alternatively, the student may be assigned to, or elect to change to, the Master of Science degree.

All written exams and the oral exam must be completed in a time period of no more than three weeks. A sample of the Preliminary Examination Checklist, the Report of the Preliminary Examination, and Title Page can be found at:
http://ogaps.tamu.edu/OGAPS/media/media-library/documents/Forms and Information/Preliminary-Examination-checklist-and-report.pdf

Ph.D. Dissertation

Requirements for dissertation/thesis preparation

Texas A&M University has extensive requirements for the writing and preparation of a dissertation or a thesis. These requirements can be quite rigid, even for what may appear to be minor items, such as font size, page margins, etc. Therefore, reading and following the university requirements is a necessity. Students can access the official manual electronically at: http://ogaps.tamu.edu/New-Current-Students/Thesis-and-Dissertation-Services

In scientific publications, we want to emphasize that due to the collaborative nature of research, proper citation of work done by others is required. Every table or figure that contain results not obtained by the author of the dissertation should cite the source in the legend. Alternatively, the student can have an acknowledgement section where all results from others are duly acknowledged.

Defense of the Dissertation

The final steps in obtaining a Ph.D. is writing and defense of the dissertation. The student should discuss the status of the research with the advisory committee before beginning to write the dissertation. When the student, advisor and advisory committee agree on a time for submission and defense of the doctoral dissertation, the Office of Graduate and Professional Studies and GPC must approve the scheduling of the defense. The Office of Graduate and Professional Studies publishes a calendar for each academic term listing strict University deadlines for these events. A copy of the OGAPS calendar is available at: http://calendar.tamu.edu/?calendar_id=11&upcoming=upcoming&limit=100

The dissertation must be given to members of the advisory committee at least 14 days before the scheduled defense. A defense of dissertation includes a public seminar held in a main lecture hall on campus. Convenient locations to have the public seminar include the Biochemistry Building, the ILSB, the Borlaug Center, and the Heep Building. The graduate academic advisor must be notified of the date, time, place, and title of the dissertation seminar at least two weeks beforehand to allow sufficient time to distribute and post notices of the defense. Specific forms are required at the defense so it is imperative that you consult closely with the graduate academic advisor before the dissertation seminar and exam. If a student has only their defense to complete and will not be on Texas A&M payroll for the entire semester, he/she may register for one credit hour of BICH 691 and be reclassified as a temporary research assistant. It is important to understand that change of classification will affect the student's benefits and insurance. Please contact the graduate program advisor with any questions.

MASTER OF SCIENCE DEGREE

Students may elect to pursue a thesis or non-thesis Master of Science in Biochemistry or Biophysics. Master's students are required to take all core coursework required of Ph.D. students.

Students, who leave the Ph.D. degree program, may be allowed to pursue a Master of Science degree, with the agreement of a graduate advisor and a graduate advisory committee. It is also necessary to fulfill all the University requirements.

Pursuit of a Master of Science thesis degree requires that the Principal Investigator (PI) extend full stipend support or arrange for equivalent support during the period of the master's research. Students in the Master of Science program are strongly advised to familiarize themselves with the University requirements for Master of Science degrees, which are extensive, and to consult with the GPC and the graduate academic advisor. For example, for a thesis-option Master of Science degree, these requirements include (but are not necessarily limited to):

Domestic Students: Degree level changes must be made no later than the 20th class day in the fall/spring and the 4th class day in the summer.

International Students: Degree level changes must be made no later than the 12th class day in the fall/spring and 4th class day in the summer. International students must have all immigration documents corrected with the International Student Services (ISS) no later than the 15th class day.

Thesis Option

- A minimum of 32-semester credit hours of approved courses, including all required biochemistry courses, and research hours.
- A degree plan approved by a thesis advisory committee and the Office of Graduate and Professional Studies. Note that the deadline for submitting a degree plan to OGAPS is usually in the middle of the semester *before* you are planning to graduate; for December graduation, the deadline may be before the start of the Summer term.
- Submission of a thesis *proposal* approved by the advisory committee and the Department Head (this does not require a committee meeting, but a meeting may be useful to discuss the proposal)
- An oral defense of a Masters thesis, which must be approved by the advisory committee and the head of the department.
- Submission of two copies of the completed thesis with the appropriate approvals to the Office of Graduate and Professional Studies' Thesis Office.
- Approval of the thesis by the Thesis Office.

At the start of the semester when you plan to defend your thesis, you must apply to OGAPS for your graduate degree and pay a diploma fee. Important deadlines can be found for each semester on the OGAPS calendar at:
http://calendar.tamu.edu/?calendar_id=11&upcoming=upcoming&limit=100

Non-Thesis Option

Requirements include:

- A committee chosen by the department.
- Completing a minimum of 36 semester hours approved by the student's advisory committee and department head.
- A final comprehensive exam.
- The requirements as to level of courses and examinations are the same as for the thesis option of Master of Science degree.
- No examination may be held prior to the mid-point of the semester or summer term in which a student will complete all remaining courses on the degree plan.
- A thesis is not required.
- Students pursuing the non-thesis option are not allowed to enroll in 691 (Research) for any reason and 691 may not be used for credit toward a non-thesis option Master of Science degree.
- Two credit hours of 690 (Theory of Research) may be used toward the non-thesis option Master of Science degree.
- Any combination of 684, 685, 690, and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan.
- All requirements for the non-thesis option Master of Science degree other than those specified above are the same as for the thesis option degree.

UNIVERSITY INFORMATION

Petitions

In the course of your graduate career, you may find it necessary to request changes in the approved degree plan on file in the Office of Graduate and Professional Studies. A petition can be used to change a committee member or change coursework on the approved degree plan. An online petition or downloadable petition form and filing instructions are available on the OGAPS web site. Petitions must be approved by all members of your official advisory committee and by the department head before you submit it to the Office of Graduate and Professional Studies.

Academic Status

The University mandates that all full-time graduate students supported by an assistantship register for 9 credit hours each fall and spring semester, 6 credit hours in summer, and maintain a grade point average of 3.0 or above.

A graduate student is considered full-time if registered for a minimum of:

- 9 semester credit hours during the fall and spring semesters; and
- 6 semester credit hours during a 10-week summer session

If you fail to register for the required minimum number of credit hours, or **if for any reason your credit hours fall below the minimum during the semester, your graduate assistantship**

position will be terminated and, if you have an out-of-state tuition waiver, it will be dropped.
If you are out of compliance with the continuous registration requirements, your registration will be blocked. To have the block lifted, you must get both 1) a favorable recommendation from the department head, and 2) approval from the Office of Graduate and Professional Studies.

International students may have additional requirements depending on their visa status. To obtain current information on visa requirements, international students should consult an International Student Advisor, Office of International Student Services, at 979 845-1824, 1st Floor, The Pavilion, Room 110, College Station, TX, 77845-1226. In most cases, the only form required is a waiver for full-time hours that can be obtained at the International Students Services Immigration Office, 1st Floor, The Pavilion, Room 110. Email: iss@tamu.edu

Tuition

Teaching assistants, research assistants, and non-teaching graduate assistants who are employed at least one-half time at a Texas institution of higher education, and whose job duties are related to teaching or research in an academic program associated with their field of study, are entitled to resident tuition and fees for themselves, their spouse and their children. Graduate students in biochemistry are limited to 7 years of resident tuition at the doctoral level.

Paychecks

Paychecks are paid for the preceding month on the first weekday of the subsequent month. Consequently, you will not receive your first paycheck until **OCTOBER 1**.

Right to Review Records

Students, once enrolled, have the right to review their educational records, except for those excluded by law, such as parents' financial statement or records maintained by a physician or psychiatrist. Educational records are maintained in departmental offices, the Admissions & Records Office and Student Financial Aid, the offices of various College Deans and in the Career Center.

Academic Honesty

Academic dishonesty in any form is a serious offense and cannot be tolerated in an academic community. Dishonesty, in any form, including cheating, plagiarism, deception of effort, or unauthorized assistance, may result in a failing grade in a course and/or suspension or dismissal from the Graduate Program. Falsification of data is grounds for immediate dismissal.

Ownership of Data

When a student enters a laboratory to work on a project, it is understood that any data obtained remain the property of the University through the individual faculty member. NIH guidelines require

that data and notebooks remain with the Principal Investigator and with the University. Final decisions on publication and on co-authorship of papers rests with the Principal Investigator (Faculty Advisor).

OGAPS WEBSITE: http://ogaps.tamu.edu/
Refer to the OGAPS web page for forms, tutorials, and links

- **Dates & Deadlines: http://ogaps.tamu.edu/Buttons/Calendars**

- **Degree Plans: http://ogaps.tamu.edu/OGAPS/media/media-library/documents/Forms%20and%20Information/Degree-Plan-Fact-Sheet.pdf**

- **Forms: http://ogaps.tamu.edu/Buttons/Forms-Information - 0-AcademicProcessForms**
  - **Preliminary Examination Checklist and Report**
  - **Request for Final Examination**
  - **Proposal Approval Page for Thesis or Dissertation**
  - **Letter of Intent**
  - **Request for Letter of Completion**
  - **Special Request Letter**
  - **Graduation Cancellation Form**

- **Petitions** for the following are made through the Document Processing Submission System (DPSS) https://ogsdpss.tamu.edu/
  - **Petition for Change of Committee Members**
  - **Petition for Change of Major, Degree or Department**
  - **Petition for Course Changes**
  - **Petition for Waivers or Exceptions to University Requirements**

APPENDIX

Approved Electives

The list below includes several elective courses taken by biochemistry graduate students recently. This list is not exhaustive. If there is a course you are especially interested in taking that is not on the list, please read on and contact the chair of the Graduate Program Committee for additional information. To ensure that the course title represents the course content, you should contact the instructor to obtain a syllabus to confirm the content, time, and location of the class.

The GPC will consider courses not listed below to be counted as approved electives. Please provide the GPC with the syllabus that lists course content and information on how students are evaluated. At least 3 of the 6 credit hours must be at the 600 level. Please note that a **489** or **689** course number indicates the course is a "Special Topic", the course may be assigned a different, permanent number in subsequent semesters.

BIOCHEMISTRY	
400 Level	
BICH 489	Practical Genomics
600 Level	
BICH 628	Computational Biology – 3 credit hours
BICH 650	Genomics – 3 credit hours
BICH 654	Structural Biochemistry – 3 credit hours
BICH 655	Crystallography Methods – 3 credit hours
BICH 661	Advanced Genome Annotation with Ontologies – 1 credit hour
BICH 662	Eukaryotic Transcription – 1 credit hour
BICH 664	Fluorescence- 1 credit hour
BICH 665	Biochemical Kinetics – 1 credit hour
BICH 689	Special Topics
BIOLOGY	
400 Level	
600 Level	
BIOL 601	Biological Clocks – 3 credit hours
BIOL 602	Transmission Electron Microscopy – 5 credit hours
BIOL 603	Advanced TEM Methodologies in Life & Material Sc. – 3 credit hours
BIOL 604	Fund. Of Scanning Electron Microscopy – 2 credit hours
BIOL 605	Prin. & Methods of Systematic Biology – 4 credit hours
BIOL 606	Microbial Genetics – 3 credit hours
BIOL 607	Terrestrial Ecosystems – 4 credit hours
BIOL 608	Light Microscopy – 3 credit hours
BIOL 611	Molecular Biol. Of Differentiation & Development – 3 credit hours
BIOL 613	Cell Biology – 3 credit hours
BIOL 614	Cell Biology Cell Signaling – 3 credit hours
BIOL 620	Transcription Initiation – 3 credit hours

BIOL 635	Plant Molecular Biology – 3 credit hours
BIOL 636	Plant Cell Biology – 3 credit hours
BIOL 644	Neural Development
BIOL 650	Genomics (register for BICH 650)- 3 credit hours
BIOL 651	Bioinformatics – 3 credit hours
BIOL 670	The Cell Cycle – 1 credit hour
BIOL 672	Molecular Biology of Photosynthesis – 3 credit hours
BIOL 674	Cellular and Molecular Aspects of Development – 3 credit hours
BIOL 689	Special Topics
CHEMISTRY	
400 Level	
CHEM 446	Organic Chemistry III
600 Level	
CHEM 603	Modern Chromo Separation Methods – 3 credit hours
CHEM 604	Modern Electrophorescence Sep Methods – 3 credit hours
CHEM 610	Organic Reactions – 3 credit hours
CHEM 615	Organic Synthesis – 3 credit hours
CHEM 618	NMR Spectroscopy – 3 credit hours
CHEM 619	Analytical Spectroscopy – 3 credit hours
CHEM 621	Chemical Kinetics - 3 credit hours
CHEN 622	Absorption Phenomena & Heterogeneous Catalysis 3 credit hrs.
CHEM 626	Thermodynamics – 3 credit hours
CHEM 627	Principles of Biological Chemistry – 3 credit hours
CHEM 628	Coordinational and Bioinorganic Chemistry – 3 credit hours
CHEM 633	Principles of Inorganic Chemistry – 3 credit hours
CHEM 635	Introduction to X-ray Diffraction Methods – 3 credit hours
CHEM 641	Structural Inorganic Chemistry – 3 credit hours
CHEM 646	Organic Chemistry – 3 credit hours
CHEM 658	Molecular Modeling – 3 credit hours
CHEM 672	Bioorganic Reaction Mechanisms – 3 credit hours
CHEM 689	Special Topics
GENETICS	
600 Level	
GENE 603	Genetics – 4 credit hours
GENE 626	Analysis of Gene Expression – 2 credit hours
GENE 631	Biochemical Genetics – 3 credit hours
GENE 654	Analysis of Complex Genomes – 3 credit hours
GENE 689	Special Topics
PHYSICS	
400 Level	
PHYS 408	Thermo & State Mechanics
PHYS 412	Quantum Mechanics I
600 Level	

600 Level	
PHYS 689	Special Topics
STATISTICS	
STAT 651	Statistics in Research I – 3 credit hours
STAT 652	Statistics in Research II – 3 credit hours
STAT 661	Statistical Genetics – 3 credit hours
VETERINARY MICROBIOLOGY	
VTMI 601	Pathobiology – 5 credit hours
VTMI 663	Molecular Biology of Viruses – 3 credit hours
VETERINARY PHYSIOLOGY AND PHARMACOLOGY	
VTPP 653	Endocrinology – 4 credit hours
VTPP 676	Genetic and Molecular Toxicology – 3 credit hours
VTPP 677	Fluor Detection – 3 credit hours
APPROVED JOURNAL CLUBS – 1 credit hour each	
BICH 625	Nucleic Acid -Protein Interactions Graded
BICH 671	Macromolecular Folding and Design Graded
BICH 672	Biological Membranes Graded
BICH 673	Gene Expression Graded
BICH 674	Protein Folding and Stability Graded
BICH 675	Plant Biochemistry and Genomics Graded
BICH 676	Bacteriophage Biology Graded
BICH 677	CHEM GENE & Drug Discovery Graded
BICH 678	Metal Ions Graded

Biochemistry Graduate Student PhD Defense Evaluation Report

tudent Name:_____ Student UIN:_____ Committee Member Name_____

)egree Being Pursued: _____ Indicate your role: Chair___ Co-chair___

)ate of Defense:_____ Member: Inside____ or Outside____

This section should be completed for ALL students:

How well does the student meet your expectations in the following areas? (Note: Expectations should represent a common level of proficiency demanded of all students in this program)	**Above Expectations**	**Meets Expectations**	**Below Expectations**	**Not Observed**
1. Exhibits a coherent understanding of discipline-specific knowledge?				
2. Applies knowledge to justify decisions?				
3. Considers a variety of sources and alternative views when critically evaluating ideas and information?				
4. Develops clear, hypothesis-driven research plans?				
5. Uses appropriate technologies to solve problems?				
6. Performs experiments with appropriate controls?				
7. Quality/reproducibility of experimental work?				
8. Proficiency in analysis of data?				
9. Communicates effectively in written and oral formats?				
10. Disseminates research results in publications and/or at scientific conferences?				
11. Chooses ethical courses of action in research and practice?				

Additional Comments (optional):

	Would you recommend that this student pursue a post-doc position? (Circle One)	**Yes**	**No**

The Committee Chair is required to submit completed defense evaluation forms to the Graduate Studies Office, Bio/Bio room 103C *

)ate Form Completed:_____

Biochemistry Graduate Student Master's Defense Evaluation Report

Student Name and UIN:_____ Committee Member Name_____

Degree Being Pursued: _____ Indicate your role: Chair___ Co-chair___

Date of Defense:_____ Member: Inside____ or Outside____

This section should be completed for ALL Masters students (Non-thesis and Thesis):

How well does the student meet your expectations in the following areas? (Note: Expectations should represent a common level of proficiency demanded of all students in this program)	**Above Expectations**	**Meets Expectations**	**Below Expectations**	**Not Observable**
1. Exhibits a coherent understanding of discipline-specific knowledge?				
2. Applies knowledge to justify decisions?				
MS 2.1 Ability to critically analyze Biochemical literature?				
MS 2.2 Applies knowledge to solve problems?				
3. Considers a variety of sources and alternative views when critically evaluating ideas and information?				
9. Communicates effectively				
11. Chooses ethical courses of action?				

This additional section should be completed for Thesis Masters students only:

How well does the student meet your expectations in the following areas? (Note: Expectations should represent a common level of proficiency demanded of all students in this program)	**Above Expectations**	**Meets Expectations**	**Below Expectations**	**Not Observable**
4. Develops clear, data-supported research plans?				
5. Uses appropriate technologies to solve problems?				
6. Performs experiments with appropriate controls?				
7. Quality/reproducibility of experimental work?				
8. Proficiency in analysis of data?				
10. Disseminates results in publications and/or at scientific conferences?				

Would you recommend that this student go on to a Ph.D. program? (Circle One) Yes No

Additional Comments (optional):

****The Committee Chair is required to submit completed defense evaluation forms to the Graduate Studies Office, Bio/Bio room 103C ****

Date Form Completed:_____

PhD Advisory Committee Annual Report

Department of Biochemistry and Biophysics, Texas A&M University

Student Name_____ Date entered PhD Program_____

Meeting Date_____ Previous Meeting Date_____

Chair_____ Co-Chair_____

**Committee Chair should collect and submit evaluation forms completed by each PhD Advisory Committee member to the Graduate Studies Office, Bio/Bio 103C **

Name of Reporting Committee Member (please print legibly)_____

How well does the student meet your expectations in the following areas? Note: Expectations should represent a common level of proficiency demanded of all students in this program	Above Expectations	Meets Expectations	Needs Improvement	Not Acceptable	Not enough information
1. Progress toward degree?					
2. Exhibits understanding of discipline-specific knowledge?					
3. Applies knowledge to justify decisions?					
4. Considers a variety of sources and alternative views when critically evaluating ideas and information?					
5. Develops clear, data-supported research plans?					
6. Uses appropriate technologies to solve problems?					
7. Performs experiments with appropriate controls?					
8. Quality/reproducibility of experimental work?					
9. Proficiency in analysis of data?					
10. Communicates effectively?					

10.1 Has the student published any of her/his PhD research? Yes____ No____

If yes, how many publications from her/his PhD research? _____

10.2 Has the student presented at a scientific conference? Yes____ No____ If yes, how many presentations? _____

If yes, indicate the type of presentation(s)? Circle: Poster Platform

Has the student participated in other professional development activities? Yes____ No____ If yes, what activities?

Summarize your specific recommendations to student

Additional comments

Committee chair should collect completed forms at the time of the meeting and turn all forms into the Graduate Programs Office, Department of Biochemistry and Biophysics, Room 103C.

Failure to file Annual Reports with the Graduate Program Office will result in a registration block.

Revised: December 2015

Annual Graduate Student Self Evaluation

Department of Biochemistry and Biophysics, Texas A&M University

The following information and a current CV is to be provided to each committee member and to the Graduate Programs Office in Bio/Bio 103C before the Annual PhD Advisory Committee meeting.

Student_____ Date entered PhD program_____

Report date_____

Committee Chair_____ Co-Chair (if Applicable)_____

Number of publications or other major writing achievements while in current degree program.	In prep	Submitted	Accepted/ Published
Refereed publications			
Non-refereed publications			
Other (specify)			

Number of oral or poster presentations at scientific meetings while in current degree program	National International	Regional Meeting	Dept/Univ	Research Competition
Oral presentations				
Poster presentations				

Grant proposals that you have submitted or have been awarded (excluding scholarships & financial aid), while in current degree program. Specify funding source and award amount.

Departmental or other TAMU (e.g. travel grants)	Funding source	Award amount
External		

Teaching experiences while in current degree program	Total # different courses	Total # semesters
As Bio/Bio TA		
Other		

Research experiences unrelated to dissertation research while in current degree program, e.g. internships or Study Abroad:

Awards (specify)	Departmental	College-level	University level	National/International

Rate your proficiency in the following areas	Proficient	Acceptable	Developing
Literature or publication searches			
Statistical analysis			
Collaborative writing and or presentation tools			
Software & technology within your discipline			

(Specify which software/technology)	

TEXAS A&M UNIVERSITY OFFICE OF GRADUATE STUDIES DEGREE PLAN

Name:

Dept: Biochemistry and Biophysics **Date:**

My proposed course of study in partial fulfillment of the degree of Doctor of Philosophy (for M.S. and M.A. degrees, select ☐ **Thesis option** or ☐ **Non-Thesis option**), with a major in Biochemistry, is submitted for the approval of the Office of Graduate and Professional Studies.

Dept. Abbr.	Course No.	Course Title	Credit Hours	Final Grade
BICH	603	General Biochemistry	3	
BICH	605	Methods of Biochemical Analysis	3	
BICH	608	Critical Analysis of Biochemical Literature	2	
BICH	624	Enzymes, Proteins, and Nucleic Acids	3	
BICH	631	Biochemical Genetics	3	
BICH	681	Seminar	1	
BICH	685	Directed Studies	2	
BICH	685	Directed Studies (Mentoring)	1	
BICH	690	Theory of Biochemical Research	12	
BICH	691	Research	54	
BICH	697	Practice of Teaching	2	
BICH		(Journal Club)	1	
BICH		(Journal Club)	1	
BICH		(Journal Club)	1	
BICH		(Journal Club)	1	
Elective			3	
Elective			3	
		Total hours listed for credit	96	

PREREQUISITES OR OTHER COURSES Not applicable for Graduate credit	CHEM 328	I understand that my Advisory Committee may add additional course work to this proposed course of study, if such additional work is needed to correct deficiencies in my academic preparation.

Approval Recommended:

(Committee Chair)	BCBP (Dept.)	(Signature of Student)	UIN Number
(Member)	BCBP (Dept.)	(Student's Mailing Address)	
(Member)	BCBP (Dept.)		
(Member)	(Dept.)		
(Department Head) Gregory D. Reinhart	Approved:	**For the Office of Graduate Studies**	Date

Advisory Committee List

Graduate Student's Name_____

1. Chair - _____

2. _____

3. _____

4. Out of Department_____Dept._____

Advisory Committee

A list of the proposed members of the advisory committee must be submitted to the GPC by 12 noon on April 1, 2016. The advisory committee must consist of four members of the graduate faculty representative of the student's field of study and research. Three members, including the chair or co-chair, must be from the Department of Biochemistry and Biophysics, and one member must have a primary appointment in a department other than the Department of Biochemistry and Biophysics. If the chair of the advisory committee is NOT an associate member of the Department of Biochemistry and Biophysics, one of the three full members must be named as co-chair. The committee members should reflect a broad biochemical perspective with faculty from molecular and biophysical endeavors. All advisory committees must be approved by the GPC.

Once formed, the advisory committee must meet for the PreP meeting in the summer of the first year and then beginning the following year, annually each academic year. A *Ph.D. Advisory Committee Annual Report* form must be completed by each committee member during each committee meeting and filed with the Graduate Programs Office. The graduate academic advisor will block registration for any student whose records do not contain completed *Ph.D. Advisory Committee Annual Report* forms from within the past 12 months. The graduate academic advisor should be notified of the scheduling of the annual advisory committee meeting so the forms required for the meeting can be distributed to the student and the student's advisor.

Please turn into the Graduate Programs Office, Biochemistry Building Room 103 by 12 noon on April 1, 2016