

# The Department of Biochemistry and Biophysics

2012 – 2013

## Graduate Handbook

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

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

### **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 2012-2013 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 Studies (OGS). <http://ogs.tamu.edu/>

## Table of Contents

<b>WELCOME</b>	2
<b>TABLE OF CONTENTS</b>	3
<b>GRADUATE CALENDAR 2012-2013</b>	5
<b>DEPARTMENT RESOURCES</b>	8
GRADUATE PROGRAM COMMITTEE (GPC)	8
BIOCHEMISTRY GRADUATE ASSOCIATION (BGA)	9
AROUND THE DEPARTMENT	10
<b>UNIVERSITY RESOURCES</b>	10
OFFICE OF GRADUATE STUDIES	11
INTERNATIONAL STUDENT SERVICES	11
STUDENT LOANS	11
STUDENT HEALTH INSURANCE	11
<b>UNIVERSITY AND DEPARTMENTAL POLICIES</b>	12
<b>THE DOCTORAL PROGRAM</b>	12
<b>FIRST YEAR</b>	13
PREREQUISITES	13
ORIENTATION	14
ENGLISH LANGUAGE REQUIREMENTS FOR INTERNATIONAL STUDENTS	14
COURSES	15
TYPICAL FIRST YEAR SCHEDULE	16
LAB ROTATIONS	17
SEMINARS	18
SCIENTIFIC MEETINGS	18
ORIGINAL RESEARCH PROPOSAL (ORP)	18
YEAR-END EVALUATION	20
SELECTION OF RESEARCH ADVISOR	20
ADVISORY COMMITTEE	21

<b>BEYOND THE FIRST YEAR</b>	21
DEGREE PLAN	22
7 YEAR CAP	22
FULL COURSE WAIVER	22
ELECTIVE COURSES	23
JOURNAL CLUB	23
ANNUAL LEAVE	23
TYPICAL 2 <sup>ND</sup> AND 3 <sup>RD</sup> YEAR SCHEDULE	24
TEACHING	25
CANDIDACY	25
RESIDENCE REQUIREMENTS	25
UNACCOUNTED FOR ABSENCES	26
DISSERTATION PROPOSAL	26
PRELIMINARY EXAMINATIONS	28
PH.D. DISSERTATION	29
<b>MASTER OF SCIENCE DEGREE</b>	30
THESIS	31
NON-THESIS	31
<b>UNIVERSITY INFORMATION</b>	32
PETITIONS	32
ACADEMIC STATUS	32
TUITION	33
PAYCHECKS	33
RIGHT TO REVIEW RECORDS	33
ACADEMIC HONESTY	33
OWNERSHIP OF DATA	34
OGS WEB SITE	34
<b>APPENDICES</b>	35
APPROVED ELECTIVES	35
APPROVED JOURNAL CLUBS	37
ADVISORY COMMITTEE ANNUAL REPORT	38
DEGREE PLAN INFORMATION	39

# First Year Biochemistry Graduate Calendar

## FALL SEMESTER 2012

August 20-24 Monday-Friday	Orientation for first year in-coming students
August 24 Friday	Last day to register for fall classes
August 27 Monday	First day of classes.
	No Faculty Research Talk today
August 28 Tuesday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
August 29 Wednesday	BGA Tea Time @ 3:30 p.m. Bio/Bio lobby
	Departmental Seminar @4:00 p.m. Bio/Bio room 108
August 30 Thursday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
August 31 Friday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
	Last day for adding/dropping courses for the fall semester
September 3 Monday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
September 4 Tuesday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
September 5 Wednesday	BGA Tea Time @ 3:30 p.m. Bio/Bio lobby
	Departmental Seminar @4:00 p.m. Bio/Bio room 108
September 6 Thursday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
September 7 Friday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
	Last day to apply for all degrees to be awarded in December
September 10 Monday	Faculty Research Talk @ 3:00 p.m. Bio/Bio Bldg., room N127
September 11 Tuesday	Dr. Park@ 3:00 p.m. Bio/Bio Bldg., room N127
September 11 Tuesday	Deadline for preference list for first lab rotation, 11 a.m. to Pat
September 14 Wednesday	BGA Tea Time @ 3:30 p.m. Bio/Bio lobby
	Departmental Seminar @4:00 p.m. Bio/Bio room 108
September 14 Friday	First lab rotation assignments announced
September 17 Monday	First lab rotation begins
October 29 Monday	Deadline for preference list for second lab rotation, 11 a.m. to Pat
November 2 Friday	Second lab rotation assignments announced
November 2 Friday	First lab rotation ends
November 2 Friday	Last day for students to drop courses with no penalty (Q drop) and last day to officially withdraw from the university
November 5 Monday	Second lab rotation begins
November 15 Thursday	Pre-Registration for 2013 Spring Semester begins
November 16 Friday	Bonfire 1999 Remembrance Day
<b>November 22-23</b>	
<b>Thursday-Friday</b>	<b>THANKSGIVING HOLIDAY</b>
December 3 Monday	Redefined day, students attend their Friday classes
December 4 Tuesday	Last day of fall semester classes
	Redefined day, students attend their Thursday classes
December 5-6	
Wednesday-Thursday	Reading days, no classes
December 7, 10-12	
Friday, Monday-Wednesday	Fall semester final examinations
December 14-15	
Friday-Saturday	Commencement and Commissioning
December 17 Monday	Deadline for preference list for third lab rotation, 11 a.m. to Pat
December 21 Friday	Third Lab rotation assignments announced
December 21 Friday	Second lab rotation ends.
<b>December 24- January 1</b>	<b>Faculty and Staff holiday.</b>

## SPRING SEMESTER 2013

### January 2 Wednesday

January 2, 3, & 4

January 11 Friday

January 14 Tuesday

### January 21 Monday

January 22 Tuesday

February 11 Monday

February 15 Friday

February 15 Friday

February 18 Monday

February 22 - 23

Friday-Saturday

### March 15 Friday

March 18 Monday

April 1 Monday

April 1 Monday

April 5 Friday

April 8 Monday

April 11-26 Thursday-Friday

April 15 Monday

April 19 Friday

April 21 Sunday

April 29 Monday

April 30 Tuesday

May 1-2 Wednesday-Thursday

May 3, 6-8

Friday, Monday-Wednesday

May 8 Wednesday

May 10-11 Friday-Saturday

May 13-14 Monday-Tuesday

May 23 Thursday

### May 27 Monday

May 28 Tuesday

### Third lab rotation begins

ORP Workshop Schedule TBA

Last day to register for spring semester classes

First day of spring semester classes

### Martin Luther King Jr. Day, Faculty and staff holiday

Submit 2 possible topics. For each, supply the key literature reference and a brief description of the question and general approach to be pursued

Deadline for preference list for fourth lab rotation, 11 a.m. to Pat

Fourth lab rotation assignments announced

Third lab rotation ends

Fourth lab rotation begins

Biochemistry Symposium

### SPRING BREAK Holiday, Faculty and Staff

11 a.m. to Pat 1 page summary of ORP topic area, aims & brief description

Deadline for preference list for permanent lab assignments, 11 a.m. to Pat

Last day for all students to drop courses with no penalty (Q-drop)

Last day to officially withdraw from the University

Announce permanent lab assignments

Fourth lab rotation ends

Permanent lab assignments begin

Pre-registration for the first term, second term, 10-week summer semester, and fall semester

11:00 a.m. Provide a copy of the signed ORP draft to Pat, plus send an electronic copy to [pat@tamu.edu](mailto:pat@tamu.edu)

Reading Day, No classes

Muster - Campus Ceremony

Classes meet, but no major exams

Last day of Spring semester classes

Redefined day, students attend their Friday classes.

Classes meet, but no major exams

Reading days, no classes

Spring semester final examinations for all students

Final ORP proposal submitted electronically to [pat@tamu.edu](mailto:pat@tamu.edu) plus 4 copies due before 5 p.m. in Pat's office BICH, Room103C

Commencement, Commissioning, and Final Review

Original Research Presentations

ORP retake proposal + 4 copies due before 10:00 a.m. in Pat's office BICH 103C

### MEMORIAL DAY, Faculty and Staff Holiday

Original Research Presentations – Retake

## SUMMER SEMESTER 2013

May 31 Friday	Last day to register for first term and 10-week semester
June 3 Tuesday	First day of first term and 10-week semester classes
June 6 Thursday	Last day for dropping courses with no record for the first term and 10-week semester
	Last day for adding courses for the first term and 10-week semester
June 21 Friday	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
<b>July 4 Thursday</b>	<b>Independence Day Faculty and Staff holiday</b>
July 8 Monday	First term final examinations
July 9 Tuesday	First day of second term classes
July 23 Tuesday	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
July 29 Monday	Last day for adding/dropping courses for the second term
	Last day for all students to drop courses with no penalty for the second term
	Last day to officially withdraw from the University for the second term
August 12 Monday	Last day of second term and 10-week semester classes
August 13-14 Tuesday-Wednesday	Second term and 10-week semester final examinations
August 16 Friday	Commencement and Commissioning
August 19 Monday	Noon deadline, Final grades for second term and 10-week semester due in Office of the Registrar

All dates and times are subject to change.

## DEPARTMENT RESOURCES

### Graduate Program Committee

#### Members of the Graduate Program Committee

<p><b>Bill Park, Professor</b>  Room 302A Biochemistry Building  979 845-8868 office  979 845-9460 lab  <a href="mailto:wdpark@tamu.edu">wdpark@tamu.edu</a></p>	<p><b>J. P. Pellois, Assistant Professor</b>  Room 430A Biochemistry Building  979 845 0101 office  979 862 6501 lab  <a href="mailto:pellois@tamu.edu">pellois@tamu.edu</a></p>
<p><b>Michael Polymenis, Associate Professor</b>  Room N113A NMR Building  979 458-3259 office  979 458-3261 lab  <a href="mailto:polymenis@tamu.edu">polymenis@tamu.edu</a></p>	<p><b>Craig Kaplan, Assistant Professor</b>  Room 322A Biochemistry Building  979-845-0429  979 845-0452 lab  <a href="mailto:cdkaplan@tamu.edu">cdkaplan@tamu.edu</a></p>
<p><b>Tim Devarenne, Assistant Professor</b>  Room N218A, NMR Building  979 862-6509 office  979 845-2600 lab  <a href="mailto:tpd8@tamu.edu">tpd8@tamu.edu</a></p>	<p><b>Jorge Cruz-Reyes, Associate Professor</b>  Room 321A Biochemistry Building  979-458-3374  979 458-3375 lab  <a href="mailto:cruzrey@tamu.edu">cruzrey@tamu.edu</a></p>
<p><b>Donald Pettigrew, Professor</b>  Room 402A Biochemistry Building  979 845-9621 office  979 862-2904 lab  <a href="mailto:dpettigrew@tamu.edu">dpettigrew@tamu.edu</a></p>	<p><b>Xui ren Zhang, Assistant Professor</b>  Room 112B Borlaug Building  979-458-0596  979 845-3372 lab  <a href="mailto:xiuren.zhang@neo.tamu.edu">xiuren.zhang@neo.tamu.edu</a></p>
<p><b>Jennifer Herman, Assistant Professor,  BGA Faculty Representative</b>  Room 305A Biochemistry Building  979 862-3165 office  979-862-3166 lab  <a href="mailto:jkherman@tamu.edu">jkherman@tamu.edu</a></p>	<p><b>Arielle Milstein, BGA Representative</b>  Room 239 Biochemistry Building  (Rye Lab)  979 862-1125 lab  <a href="mailto:alm25@neo.tamu.edu">alm25@neo.tamu.edu</a></p>



<p><b>Pat Swigert, Senior Academic Advisor</b>  Room 103C Biochemistry Building  979 845-1779 office  979 845-9274 fax  <a href="mailto:pat@tamu.edu">pat@tamu.edu</a></p>	<p><b>Debbie Gau, Senior Secretary</b>  Room 103A Biochemistry Building  979 845-1013 office  979-845-9274 fax  dgau@tamu.edu</p>
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## Graduate Program Committee

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 Succeed at the ORP,” ORP practice session, “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

Pat Swigert-  
Senior Academic Advisor  
Room 103C Biochemistry and Biophysics Building  
979 845-1779 Office  
[pat@tamu.edu](mailto:pat@tamu.edu)  
Graduate Advising

Debbie Gau  
Senior Secretary  
979 845-1013 Office  
Room 103A Biochemistry and Biophysics Building

Betty Cotton (Administrative Assistant to Dr. Reinhart)  
Room 103D Biochemistry and Biophysics Building  
979 845-5032 Office  
[blcotton@tamu.edu](mailto:blcotton@tamu.edu)  
Help desk and notary public services

Juanita Withem  
Room 103 Biochemistry and Biophysics  
979 845-5032 Office  
[juanitaw@tamu.edu](mailto:juanitaw@tamu.edu)  
Photocopy cards; key issuance, media/ room reservations, lab, and help desk

Sherry Coronado  
Room 103G Biochemistry and Biophysics Building  
979 845-1435 Accounting Office  
979 845-9274 Fax  
[s-coronado@tamu.edu](mailto:s-coronado@tamu.edu)  
Payroll, key issuance

## Office of Graduate Studies

The TAMU Office of Graduate Studies (OGS), located in room 302 Jack K. Williams Administration Building, is responsible for overseeing all graduate students at Texas A&M. Over the course of your graduate career there are several steps where OGS 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 OGS are described in this handbook, and in a Graduate Catalog, available on the OGS web page. This web site also has downloadable forms and relevant instructions required at various times during your graduate career. (See Appendix, page 37) <http://ogs.tamu.edu/>

### **International Student Services**

International Student Services is located in Bizzell Hall East and offers assistance to international students. For further information call 845-1824 or visit: <http://international.tamu.edu/iss>

### **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 845-3236 or 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 sign-up for insurance during orientation. Several options are available.

Students on fellowships and training grants are not considered TAMU employees and must purchase their own health insurance. Students with fellowships have the option to purchase health insurance and should contact the department accounting office (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 Ag Program Human Resources office at 845-5645. Ask for the benefits representative. Information is available on the web address <http://sago.tamu.edu/shro>. The office is in the Wells Fargo Bank Building, Suite 504, at the corner of Briarcrest Drive and Hwy. 6, Bryan, Texas. <http://tamus.edu/offices/hr/>

## 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 doctoral program in biochemistry is designed to train students for a lifetime of scientific endeavor focused on the molecular processes of life. 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 but intensive instruction in laboratories and seminars, with close contact between students and faculty advisors. The Ph.D. degree is primarily based on original research. Coursework and required examinations such as the Original Research Proposal and preliminary examinations are designed to prepare students for work in the laboratory and to help the GPC evaluate student progress toward a degree. Below is a typical graduate career in our department. This *Handbook* provides explanations of the listed items.

### First Year

- Required core courses
- 4 Laboratory rotations
- Join a laboratory
- Required BICH 681 seminar course (spring semester)
- Original Research Proposal (ORP)
- Select members of advisory committee

### Second Year

- Hold first advisory committee meeting
- Prepare and file degree plan
- Elective coursework
- Journal club participation
- Teaching - BICH 697

### Third Year

- Annual advisory committee meeting
- Journal club participation
- Prepare dissertation proposal
- Preliminary examinations (fall semester)
- Admission to candidacy

### **After Third Year**

Annual advisory committee meeting

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, of the Graduate Program Committee, and of the Office of Graduate 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 already had all of the following:

- 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

This background is considered 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 BICH 410, 411, and 431 have the option of auditing the class so that they do not need to pay for this class. However, the 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 these meetings is required of all students.

## **English Language Requirement for International Students**

The English proficiency of students whose primary language is not English must be certified before they are eligible to serve as TA's. Certification can be obtained in any of four ways:

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

Graduate students must begin to take ELI courses (in at least one of the areas not yet passed) no later than their second semester enrolled at Texas A&M. Graduate students will be allowed to take a combination of Texas A&M and ELI 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.

## **Courses**

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

Students with a complete undergraduate background will have the schedule shown below. You must register for at least 9 credit hours in both the fall and spring semesters and are required to maintain an average of 3.0 or better GPA, **with no more than one "C"** in the required biochemistry courses.

**If you have more than one C, or if your grade point average is below 3.0, you may be considered for removal from the Ph.D. program.**



### 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	Lab Rotation	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 manipulations of genetic molecules	3	Required
BICH 685	Directed Studies	Lab rotations (register under Dr. Park's section)	1	Required
BICH 685	Directed Studies	ORP Mentoring (register under your ORP Mentor's name)	1	Required

*\*Incoming students that need Physical Chemistry will enroll in CHEM 328 during the fall semester and will audit BICH 603, their official class grade will be reported to the GPC and will officially enroll in BICH 603 in the fall semester of their 2<sup>nd</sup> year. Students who have not taken a Molecular Biology or Molecular Genetics course (BICH 431) should audit it during the fall semester and their official class grade will be reported to the GPC.*

## Lab Rotations

As part of the process of selecting a research advisor, you will undertake four lab rotation periods in your first year. 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.

The first consideration in choosing a lab should be the scientific activities 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, it is mandatory to attend the departmental poster session held during orientation and the “Faculty Research Talks”.

**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 such elements as time commitment, enthusiasm, perseverance, and interactions with laboratory personnel, and are considered in the year-end evaluation.** Because the Ph.D. is primarily a research degree, productive and interactive lab rotations are extremely important in setting the course of your career as a research scientist.

The first year consists of four rotation periods beginning early in the fall semester and ending at the end of March. The exact dates are indicated on the Graduate Calendar.

Before each rotation, (see Graduate Calendar for specific dates) each student must submit a written preference list of four faculty names, in ranked order, to the graduate academic advisor. You are required to meet privately with those four faculty members before submitting the lab preference form. The GPC will assign rotations according to the preference lists insofar as possible, subject to the approval of the faculty involved and to a limit of no more than two students in one laboratory per rotation period.

Even if you are sure you know which lab you want to join, it is important to find the best possible back up choices. Note that each faculty member is only allowed to take two new students per year.

A student may be excused from rotations with permission of the GPC if the student 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. These arrangements must be approved by the GPC.

## **Seminars**

All biochemistry 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 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 in the spring of the year (<http://txfolders.tamu.edu/index.php?page=home>) The BGA provides travel grants for more senior students to attend national scientific meetings.

## **Original Research Proposal (ORP)**

An important milestone for the first year is the Original Research Proposal (ORP). The ORP process involves preparing a proposal that describes a small project and defending that proposal to a faculty committee. ORP preparation generally is done over the course of the spring semester; the oral defenses are after finals (See Graduate Calendar). Passing the ORP exam, along with satisfactory performance in classes and in the rotations are all deciding factors in allowing the students to advance to the next phase of their studies.

The primary goal of the ORP is to have the first-year students understand what goes into designing a project: how to formulate a question that is worth answering, how to recognize alternative hypotheses and to design and interpret experiments that can distinguish between them. This requires some level of understanding the basis for how

different kinds of experiments work. In essence, the ORP is like the kind of grant proposals you will have to write throughout your career. Your goal is to convince the examining committee that you have identified an interesting question concerning biological processes, and designed a series of experiments, including some biochemical ones, to address that question. To help first-year student write a compelling research proposal, we have designed the ORP process to give you help and guide you all along the way.

### **ORP Permanent Lab Mentors**

A faculty member of the department will be assigned to advise each student during development of the ORP topic. ORP mentors are not intended to tell you what to put in your proposal. Their main goal is to advise students by pointing out obvious flaws in reasoning, asking about controls and alternative approaches, and probe the student's understanding of the possible outcomes of their experiments. ORP mentors also help by pointing to critical sources of information in the literature or among the students, postdocs, and faculty on campus.

ORP mentors can also suggest off-campus experts who can provide advice by email. ORP mentors may read and comment on proposals, but they may not attend BGA practice talks. If your topic changes always free to seek advice from other faculty, but only your ORP mentor and your permanent lab mentor can read drafts of your proposal.

### **ORP rules**

- The ORP topic may not be a current or past project of any faculty in the department, or a project on which the student has previously worked at another institution.
- The ORP project must be hypothesis driven. Descriptive research topics are discouraged.
- We encourage the students to develop proposals centered on biochemical questions. In the event that the student does not choose to do this, at least one experimental approach should involve biochemical techniques.
- During the semester, any student can ask any faculty member about the ORP, but faculty should try not to design experiments for ORPs.
- Only ORP mentors and PIs are allowed to read drafts of the proposals
- Faculty are **NOT** allowed to attend the BGA practice talks.

## **ORP defense**

In mid May (see Graduate Calendar), each student defends the ORP before a committee consisting of three faculty members chosen by the GPC. Each committee will include at least one GPC member. Oral ORP exams are scheduled for about 90 minutes. You should prepare a short presentation on your project (about 20 minutes) and expect to be interrupted with questions.

## **ORP rewrites and retakes**

After the ORP exam, the GPC will meet to evaluate your performance. There are several possible outcomes including: passing the written and oral parts, having to rewrite the proposal only, and having to retake the ORP.

It is common for some first-year students to be asked to re-defend the ORP, after a suitable period for preparation to correct deficiencies. For this reason, it is important for students not to make vacation/travel plans for the period immediately following the ORP defense date in May. During preparation for a re-defense of the ORP, the student is still expected to proceed with selection of a research advisor, with the caveat that the decision to advance in the doctorate program is held in abeyance until the second ORP defense is evaluated.

The ORP retakes are held about two weeks after the first ORP defense. All students must successfully complete the ORP in order to continue in the Ph.D. program.

## **Year-End Evaluation**

After the ORP defense, each first-year student's overall performance is evaluated by the GPC and determined to be "satisfactory" or "unsatisfactory" on the basis of grades, evaluations of lab rotations, and the ORP. Students will be notified in writing of the GPC's decision. Students whose overall performance in the first year is judged inadequate will be dropped from the doctoral program in biochemistry, but may elect to pursue a Master of Science degree.

## **Selection of Research Advisor**

Before the end of the spring semester, each student should meet with prospective research advisors to determine if there is room in the lab for a new student and discuss available research projects. A ranked list of four choices for a research advisor is to be turned in by the date indicated on the calendar to the Graduate Program Office. **No more than two**

**first year biochemistry Ph.D. students may join the same laboratory; exceptions may be made in the case of assistant professors.** 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 1<sup>st</sup> of the year. 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 without the necessity of GAT or GANT funding.

### **Advisory Committee**

Upon entering a laboratory, the student forms an advisory committee. A list of the proposed members of the advisory committee must be turned in to the GPC at the beginning of the fall semester. 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 biochemistry. If the chair of the advisory committee is an associate member of the department, one of the three full members must be named as co-chair. The committee members should reflect a broad biochemical perspective. All advisory committees must be approved by the GPC.

Once formed, the advisory committee must meet between **September 1 and February 28** of each academic year. A Ph.D. committee *Annual Report* form (see Appendix) must be completed 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 such an annual report from the past 12 months. To prevent such blocks, the graduate academic advisor should be notified of the annual advisory committee meeting as a matter of course.

### **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 Studies (OGS) upon formation of the advisory committee and before the end of the spring semester of the 2<sup>nd</sup> 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 first semester of the second year. If the advisory committee later determines there is sufficient reason to alter the plan of coursework, petitioning the Office of Graduate Studies can make changes to the degree plan. Petitions to change your degree plan should be submitted to the Graduate Program Office. A representative degree plan is included on page 39 of the Appendix. <http://ogs.tamu.edu/>

## **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. A list of approved electives can be found included in this document. Prerequisites 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 GPC proposes to formally confirm the departmental policy 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 has the option on placing the student on unpaid leave.



### Typical 2nd-Year Course Schedule

<b>Fall Semester</b>		<b>Title</b>	<b>Credit Hours</b>
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
		<b>Total</b>	<b>9</b>
<b>Spring Semester</b>		<b>Title</b>	<b>Credit Hours</b>
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
		<b>Total</b>	<b>9</b>
<b>Summer Semester</b>		<b>Title</b>	<b>Credit Hours</b>
REQUIRED	BICH 691	Research	6
		<b>Total</b>	<b>6</b>

### Typical 3rd-Year and beyond Course Schedule

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

## Teaching

All students are required to serve as Teaching Assistants (TA's) during their graduate career. Students who are supported on training grants and fellowships are required to teach a minimum of one semester; all other students are required to teach two semesters. Teaching will generally be in the student's second or third year in the program. During the semesters when they serve as TA's, students must register for BICH 697 "Teaching Biochemistry Laboratory."

The instructor, who 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 as a recitation section for a lecture course.

International students serving as TA's 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. 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.

## **Unaccounted for 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 form 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. The student will then need to obtain the committee chair's signature on the Preliminary Examination Checklist. 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 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 to the Office of Graduate Studies. The Office of Graduate Studies will then do a post-review of the examination and the eligibility requirements.

## **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 even expectation that a proposal will contain significant preliminary data.

The proposal should explain the rationale or approach and the methodology you will use. Although the final copy of the proposal to be filed with the OGS will be a 5- page single-spaced document, give your committee a double-spaced printout so they'll have space to write comments and suggestions. A well-written proposal is organized according to NIH Grant Guidelines and should include four sections: 1) specific aims, 2) background and significance, 3) experimental design and methods, and 4) literature cited.

Submit only one original proposal with the signed Proposal Title Page. The student should sign the Title Page, all the members of the advisory committee and the head of the student's major department. <http://thesis.tamu.edu/>

#### •**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, which the project is intended to fill. State concisely the importance of the research described in this application by relating the specific aims to the broad, long-term objectives. **One to two pages are recommended.**

#### •**Experimental Design and Methods**

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 the kind of detailed description of protocols that should be 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 timetable for the investigation. Although no specific number of pages is recommended for this section of the application, *the total for the entire proposal should not exceed 5 or 6 pages.*

Inclusion of an additional section describing results already accomplished on the project may be appropriate. It is recommended that this section be placed before "Experimental Design."

#### • **Literature Cited**

Use references to support statements or concepts. List your references at the end of your proposal rather than throughout the text, and do not exceed one page. Each citation must include the names of all authors, 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 for the week before the oral exam, with each member of the committee allotted one day. In any case, all written exams and the oral exam must be completed in a time period of no more than three weeks. Each member of the advisory committee gives the student a written examination. The student should discuss the format of each exam beforehand with the respective committee members. An individual member may choose to waive a written exam.

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 at least two weeks prior to the written portion of the exam. Note that although the proposal is the focus of both the written and oral

exams, the student is expected to be able to intelligently 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 in 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. Unanimous agreement of the committee is required that the performance was satisfactory is required for successful completion of the preliminary examination.

Upon completion of the oral exam, the student or the chair (your 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 Studies. The Office of Graduate Studies will then do a post-review of the examination 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 title page, signed by all members of your advisory committee and the Department Head, will then be sent to the Office of Graduate Studies.

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://ogs.tamu.edu/incoming-students/student-forms-and-information/>.

## **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 include quite rigid, even for what may appear to be minor items such as the font size, page margins, etc. Therefore, reading and

following the university requirements is a necessity. Students can access the official manual electronically at the website: <http://thesis.tamu.edu/>

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 contained 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 Studies and GPC must approve the scheduling of the defense. The Office of Graduate Studies publishes a calendar for each academic term listing strict University deadlines for these events. A copy of the academic calendar is available at the following web site: <http://admissions.tamu.edu/Registrar/General/Calendar.aspx>

The dissertation must be given to members of the advisory committee at least 13 days before the scheduled defense. A defense of dissertation includes a public seminar held in one of the main lecture halls in the Biochemistry Building or the Borlaug Center. The student and research advisor must do the scheduling of the defense with this site requirement in mind. In addition the graduate academic advisor must be notified of the date, time, place, and title at least two weeks beforehand to allow sufficient time to distribute and post notices of the defense. When the students have only their defense to complete and will not be on Texas A&M payroll the entire semester, they may register for one credit hour of BICH 691 and be reclassified as a temporary research assistant. Change of classification will result in changes of benefits and insurance.

### **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.

The ORP examination is not part of the Master of Science degree program. Students who for various reasons drop out of the Ph.D. degree program may 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 advisor 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. 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 20<sup>th</sup> class day in the fall/spring and the 4<sup>th</sup> class day in the summer.

**International Students:** Degree level changes must be made no later than the 12<sup>th</sup> class day in the fall/spring and 4<sup>th</sup> class day in the summer. International students must have all immigration documents corrected with the International Student Services (ISS) no later than the 15<sup>th</sup> 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 Studies. Note that the deadline for submitting a degree plan to OGS 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 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 OGS for your graduate degree and pay a diploma fee. Important deadlines can be found for each semester on the academic calendar at the web site: <http://admissions.tamu.edu/Registrar/General/Calendar.aspx>

### **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 Studies. A petition can be used to change a committee member or change coursework on the approved degree plan. A downloadable petition form and filing instructions are available on the OGS web site. Petitions must be signed by all members of your official advisory committee and by the department head before you submit it to the Office of Graduate 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, plus 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 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, Bizzell Hall East Building. In most cases, the only form required is a waiver for full-time hours, which can be obtained at the International Students Services Immigration Office, Bizzell Hall East, Room 104.

### **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 Student Records office and of Student Financial Aid, the offices of various College Deans, in the office of Career Development and Placement, and in the office of Educational Advising.

### **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 can be grounds for immediate dismissal.

## **Ownership of Data**

When a student enters a laboratory to work on a project, it is understood that any data produced remains 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).

**OGS WEBSITE** <http://ogs.tamu.edu/>

Please refer to the OGS web page for the forms listed below.

**Dates & Deadlines:** <http://ogs.tamu.edu/current-students/dates-and-deadlines/>

**Forms:** <http://ogs.tamu.edu/incoming-students/student-forms-and-information/>

- **Degree Plans**
- **OGS Petitions**
  - **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**
- **Exams**
  - **Checklist & Report of the Preliminary Examination**
  - **Request for Final Examinations**
- **Other Forms**
  - **Proposal Title Page for Thesis or Dissertation**
  - **Letter of Intent**
  - **Request for Letter of Completion**
  - **Graduate Appeals Form**
  - **Special Request Letter**
  - **Graduation Cancellation Form**

## Approved Electives

The list below includes elective courses taken by biochemistry graduate students in recent years. To be counted as an elective toward the degree plan, a course must have prior approval by the student's advisory committee and the GPC. At least 3 of the 6 credit hours must be at the 600 level. For approval of a course not listed below, the Graduate Program Committee will need a syllabus of course content and information on how student performance is evaluated. If there is a particular course you are especially interested in, it is advised that you contact the instructor to confirm the content, time and meeting place of the class. 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.

<b>BIOCHEMISTRY</b>	
<b>400 Level</b>	
BICH 489	Practical Genomics
<b>600 Level</b>	
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 662	Eukaryotic Transcription – 1 credit hour
BICH 664	Fluorescence- 1 credit hour
BICH 665	Biochemical Kinetics – 1 credit hour
BICH 689	Special Topics- variable
<b>BIOLOGY</b>	
<b>400 Level</b>	
<b>600 Level</b>	
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 hrs
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 624	Fungal Genetics 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
<b>CHEMISTRY</b>	
<b>400 Level</b>	
CHEM 446	Organic Chemistry III
<b>600 Level</b>	
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
CHEM 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	Coordination 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 672	Bioorganic Reaction Mechanisms – 3 credit hours
CHEM 689	Special Topics
<b>GENETICS</b>	
<b>600 Level</b>	
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

<b>PHYSICS</b>		
<b>400 Level</b>		
PHYS 408	Thermo & State Mechanics	
PHYS 412	Quantum Mechanics I	
<b>600 Level</b>		
PHYS 689	Special Topics	
<b>Statistics</b>		
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	
<b>VETERINARY MICROBIOLOGY</b>		
VTMI 601	Pathobiology – 5 credit hours	
VTMI 663	Molecular Biology of Viruses – 3 credit hours	
<b>VETERINARY PHYSIOLOGY AND PHARMACOLOGY</b>		
VTPP 653	Endocrinology – 4 credit hours	
VTPP 676	Genetic and Molecular Toxicology – 3 credit hours	
VTPP 677	Fluor Detection – 3 credit hours	
<b>APPROVED JOURNAL CLUBS – 1 credit hour each</b>		
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

**Ph.D. Advisory Committee Annual Report**  
**Department of Biochemistry and Biophysics**  
**September 1 – February 28**  
**Texas A&M University**

**Student** \_\_\_\_\_ Date Entered Ph.D. Program \_\_\_\_\_  
**Meeting Date** \_\_\_\_\_ **Previous Meeting Date** \_\_\_\_\_

\*Please fill out prior to your Annual Committee Meeting:

Journal Club(s) in which student regularly participates \_\_\_\_\_

Please fill the following if applicable:

Preliminary Examination Date: \_\_\_\_\_

Presentation at a professional meeting: Title \_\_\_\_\_

Name of meeting \_\_\_\_\_ Date \_\_\_\_\_

Publication in a reviewed scientific journal: Title \_\_\_\_\_

Journal \_\_\_\_\_ Date \_\_\_\_\_

**Committee Chair** \_\_\_\_\_ **Co-Chair** \_\_\_\_\_  
 (if applicable)

**Name of Reporting Committee Member** \_\_\_\_\_

Summarize your specific recommendations to student:

Assess student's overall progress toward completion on the Ph.D. degree:

excellent                      satisfactory                      borderline                      unsatisfactory

Additional comments:

The Chair of the Committee will 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 an Annual Report with the  
 Graduate Programs Office will result in a block of registration.**

