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DIRECTORY

Faculty with Primary Appointments in Cellular and Molecular Physiology

Name	Email	Location	Phone
Emile L. Boulpaep Director of Graduate Studies Director of Medical Studies	Emile.Boulpaep@yale.edu	SHM B-163C	203-785-4055
Sviatoslav Bagriantsev	Sviatoslav.bagriantsev@yale.edu	SHM B163D	203-737-8329
Cecilia Canessa	Cecilia.Canessa@yale.edu	SHM B-126	203-785-5771
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Carson Thoreen	Carson.thoreen@yale.edu	SHM	
Susumu Tomita	Susumu.Tomita@yale.edu	BCMM 454B/441	203-785-7201

Tong Wang	Tong.Wang@yale.edu	SHM B144A	203-785-6435
David Zenisek	David.Zenisek@yale.edu	SHM B-114	203-785-6474

Faculty with Secondary Appointments in Cellular & Molecular Physiology

Name	Email	Location	Phone
Nii Addy Psychiatry	Nii.addy@yale.edu	301 Cedar Street	203-737-5646
Nadia Ameen Pediatrics	Nadia.ameen@yale.edu	FMP 412	203-785-4649
Peter S. Aronson Internal Medicine	Peter.Aronson@yale.edu	TAC S-255C	203-785-4902
Angelique Bordey Neurosurgery	Angelique.Bordey@yale.edu	FMB 422A	203-737-2515
Thomas Brown Psychology	Thomas.Brown@yale.edu	DL 332A	203-432-7008
Stuart Campbell Biomedical Engineering	Stuart.campbell@yale.edu	55 Prospect Street	203-432-4321
Lloyd G. Cantley Internal Medicine/Nephrology	Lloyd.Cantley@yale.edu	TAC S-255A	203-785-7110
Jonathan Demb Ophthalmology	Jonathan.demb@yale.edu	300 George Street Suite 8100	203-785-2723
Marie Egan Pediatrics/Respiratory Medicine	Marie.Egan@yale.edu	FMP 506	203-785-2480
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Anne Eichmann Internal Medicine/Cardiology	Anne.eichmann@yale.edu	300 George St 773F	203-737-5202
John R. Geibel Gastrointestinal/General Surgery	John.Geibel@yale.edu	BML 265	203-737-4152
Leonard K. Kaczmarek Pharmacology	Leonard.Kaczmarek@yale.edu	SHM B316c	203-785-4500
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George Lister Pediatrics	George.lister@yale.edu	LMP 4085	203-785-4638
Pramod Mistry Internal Medicine/Digestive Diseases	Pramod.mistry@yale.edu	LMP 4093	203-785-3412

Patricia Preisig Internal Medicine/Nephrology	Patricia.Preisig@yale.edu	TAC S363	203-785-7287
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Joseph Santos-Sacchi Surgery/Otolaryngology	Joseph.Santos-Sacchi@yale.edu	BML 244	203-785-7566
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Graduate Students associated with the Department

Name	Program / Department	Lab	Phone
Yi Chen	Ph.D. Program Cellular and Molecular Physiology	Sigworth Lab SHM BE 25	
Patrick Dunn	Ph.D. Program Cellular and Molecular Physiology	Tomita Lab BCMM 448	203-785-7201
Colleen Feriod	Ph.D. Program Cellular and Molecular Physiology	Ehrlich Lab SHM B207	203-737-1158
Brandon Gassaway	Ph.D. Program Cellular and Molecular Physiology	Rinehart Lab YWC Bldg 31 Room 234	203-737-1599
Kseniya Gavrilov	Ph.D. Program Cellular and Molecular Physiology	Saltzman Lab MEC 401B	203-432-4262
Dipon Ghosh	Ph.D. Program Cellular and Molecular Physiology	Nitabach Lab SHM BE29	203-737-2912
Melanie (Maya) Kaelberer	Ph.D. Program Cellular and Molecular Physiology	Jordt Lab SHM B323	203-737-1560
Eun Hea (Grace) Kim	Ph.D. Program Cellular and Molecular Physiology	Young/Kaczmarek Lab SHM	203-785-4102
Rachel Jamison Perry	Ph.D. Program Cellular and Molecular Physiology	Shulman Lab TAC S269A	203-785-5447
Max Petersen	M.D./Ph.D. Program Cellular and Molecular Physiology	Shulman Lab TAC S269A	203-785-5447
Mindian Li	Ph.D. Program Cellular and Molecular Physiology	Yang Lab LSOG 204C	203-737-1275
Anila Madiraju	Ph.D. Program Cellular and Molecular Physiology	Shulman Lab TAC S269A	203-785-5447
Lindsey Stavola	Ph.D. Program Cellular and Molecular Physiology	Caplan Lab SHM B109	203-785-6833
Kevin N. Su	Ph.D. Program Cellular and Molecular Physiology	Young Lab 300 George St	203-785-4102
Yanbin Wang	Ph.D. Program Cellular and Molecular Physiology	Demb Lab 300 George St. Suite 8102F	203-737-6327
Jingshing Wu	Ph.D. Program Cellular and Molecular Physiology	Caplan Lab SHM B109	203-785-6833
Kaisi Zhang	Ph.D. Program Cellular and Molecular Physiology	Yang Lab LSOG 204C	203-737-1275

Departmental Offices

SHM Room B-147

Name	Position	Phone
Leisa Strohmaier	Registrar/Chair's Assistant	203-785-4041
Joseph DePonte	Administrator	203-785-2395
Renata Musial	Accountant	203-785-4053
Patricia Redenti	Coordinator, Grants & Contracts	203-785-7376
Bobbie Barrett	Financial Assistant	203-785-4051
Duncan Wong	Systems Programmer	203-785-4049
Lyndsey Maher	Office Assistant	203-785-2989

Yale University Graduate School		
Dean Thomas D. Pollard	HGS Room 112	203-432-2733
Associate Dean Richard Sleight	HGS Room 132	203-432-2744
University Registrar Grad School of Arts & Sciences Gabriel Olszewski	246 Church St 3 rd floor	203-436-0492
Registrar's Office Faculty of Arts & Sciences	246 Church Street, 3 rd Floor (grades; transcripts; forms)	203-432-2330 203-432-2743
Graduate Student Services and Reception Office	HGS Room 140 (general information; dissertation submission)	203-432-2770
Financial Aid Office	HGS Room 128 (loan applications; questions concerning fellowships)	203-432-2739
Student Financial Services Center	320 York Street	203-432-2700
Program in the Biological and Biomedical Sciences (BBS) Lynn Cooley, Director John Alvaro, Admin Director Bonnie Ellis, Asst Admin Dir	SHM Room I-363 SHM Room L-200C SHM Room L-203	203-785-5067 203-785-3735 203-785-5663
MD/PhD Program James Jamieson, Director Cheryl DeFilippo, Coordinator Susan Sansone, Registrar	ESH Room 317 / SHM C228 ESH Room 319 ESH Room 316	203-785-4317 203-785-4403 203-785-2103 203-785-4403

Special University Offices		
Graduate Housing	420 Temple Street	203-432-4548
International Center	442 Temple Street	203-432-6460
Office of International Student & Scholars	421 Temple Street	203-432-2305
Office for Women in Medicine	SHM L-202	203-737-4100
Office of Multicultural Affairs	SHM I-100	203-785-7545
University Police Department	57 Lock Street 79 Howe Street	203-432-4400
MINIBUS (Night Security Transit Service)	(6:00 p.m. - 7:30 a.m.)	203-432-6330 203-432-9255
Yale University Health Services Emergencies Information & Member Services Student Medicine	55 Lock Street	203-432-0123 203-432-0246 203-432-0312

The Graduate Program - Registration and General Policy

Introduction

This handbook is intended to be a source of information for graduate students studying for the Ph.D. degree in the Department of Cellular & Molecular Physiology at Yale. Students and faculty should be able to find answers to questions that they may have from time to time about the Cellular & Molecular Physiology Ph.D. program and its specific policies. The Programs and Policies Bulletin of the Graduate School of Arts and Sciences (<http://www.yale.edu/printer/bulletin/htmlfiles/grad/index.html>) updated annually, is the definitive source of information about academic rules and regulations as well as general policies that apply to all graduate programs.

General Information

Graduate School registration online is required of all students, whether in residence, in absentia, or submitting a dissertation. <http://students.yale.edu/oci/> Failure to register makes the student ineligible to use University facilities, including the libraries and the Health Service.

Orientation and Registration check-in for all new students occur between August 19, and August 23, 2013. Online Registration and Course Selection dates for the current academic year are listed in the Graduate School "Programs and Policies" 2013-2014. Fall term Online Course Selection (OCS) ends September 11, 2013. Spring term Online Course Selection (OCS) occurs between January 9 and January 24, 2013. Certain changes can be made after these dates (consult the Departmental Registrar or the Graduate School Registrar for details), but a \$25 fee *will* be charged for each change.

Continuing Students must also register through the Online Course Selection process.

Summer registration is required of all graduate students supported through Yale-administered funds. Continuing students who were registered during the preceding spring term remain registered through August 31.

Foreign Student Registration

Foreign students must check in at the Office of the International Students and Scholars (OISS), 421 Temple Street, 203-432-2305 before registering at the graduate school. U.S. immigration regulations require that foreign students check in with the OISS when they arrive on campus. Be sure to bring along your passport and immigration documents when you come for the first time. The Office of International Students and Scholars is open from 8:30 am to 5:00 pm, Monday, Wednesday, Thursday and Friday. The office opens at 10:00 am on Tuesday mornings. OISS can also help with visa and language problems and may assist students in other ways to adjust to local conditions. The website is <http://www.yale.edu/oiss/>.

The OISS is a resource on immigration matters and hosts orientation programs and social activities or the University's international community. "All international students and scholars must register with OISS as soon as they arrive at Yale, at which time OISS will provide information about orientation activities for newly arrived students, scholars, and family members." (GSAS Programs and Policies p. 528)

In Absentia Registration

A student, whose curriculum requires full-time study at another institution, or dissertation research on a full-time basis outside the New Haven area can register in absentia, provided he/she receives prior written approval from the Department and the Dean of the Graduate School. Such students will not be enrolled in the Yale Health Plan unless they are paying full tuition, but may enroll themselves (and dependents) at full cost.

Leave of Absence

Students in good standing who wish to interrupt their study temporarily for personal reasons may, with approval of the Department and the Dean, be granted a leave of absence. There are two types of leave, personal and medical. Only students who will not be primarily engaged in degree-related activities during the period of leave are eligible. A one term or one-year leave can be granted to students who have satisfactorily completed one year of study in the Department.

The student should meet first with his/her advisor upon considering taking a Leave of Absence. After consultation with the advisor and the DGS, the student must submit the appropriate form to the DGS who then forwards it to the Dean. Please note that the forms should be completed before the beginning of the term in which the student requests a Leave of Absence and leave will not be granted retroactively and normally will not be approved after the tenth day of a term.

The Leave of Absence Form may be found at
<http://www.yale.edu/graduateschool/academics/forms/leave>

A complete set of Guidelines may be found at
<http://www.yale.edu/printer/bulletin/htmlfiles/grad/policies-and-regulations.html>

Students on leave of absence need not formally apply for readmission before returning to Yale. However, they must notify the registrar in writing of their intention to return. Such notification should be given at least six weeks prior to the end of the approved leave. Students on leave are not enrolled in the Yale Health Plan but may continue membership by paying the full cost.

Time off Policy

A. Holidays

It is the policy of the Department of Cellular & Molecular Physiology to allow all students enrolled in the Graduate Program to take the official Yale holidays as follows for the academic year 2013 - 2014:

Labor Day	Monday, September 2, 2013
Thanksgiving Day	Thursday, November 28, 2013
Recess Day	Friday, November 29, 2013
Recess Day	Tuesday, December 24, 2013
Christmas Day	Wednesday, December 25, 2013
Recess Days	Thursday, December 26, 2013
	Friday, December 27, 2013
	Monday, December 30, 2013
	Tuesday, December 31, 2013

New Year's Day	Wednesday, January 1, 2014
ML King Jr Day	Monday, January 20, 2014
Good Friday	Friday, April 18, 2014
Memorial Day	Monday, May 26, 2014
Independence Day	Friday, July 4, 2014

B. Vacation

The Graduate Program in Cellular and Molecular Physiology promotes the opinion that being a graduate student is a full-time job. University policy allows the department to determine vacation policies with certain limitations. **It is expected that graduate students in Cellular and Molecular Physiology will have, per academic year, no more than two weeks of vacation beyond the University holidays.** For the purpose of U.S.P.H.S. training grant awards, the period between the spring and fall semesters is specifically considered to be an active time of research and research training and is not considered to be a vacation or holiday.

The granting of a vacation request should take into account the progress of the student towards his/her degree objective. The vacation time taken must be mutually agreeable to the student, the Thesis Advisor and DGS and must not conflict with the laboratory responsibilities or the teaching responsibilities of students.

Outside Employment

Graduate students should recognize that the pursuit of a graduate research degree is a full-time activity that may require significant personal sacrifices for a time but which will hopefully pay off in a more rewarding life's work and greater earning potential. Therefore, students are strongly discouraged from engaging in work outside of the department to supplement their University income. However, occasions do occur in which the question of outside work arises.

Any student wishing to engage in outside work to supplement his or her income is encouraged to discuss this matter earnestly with the advisor as well as the DGS before accepting outside employment. The overriding issue is whether the student is making satisfactory progress towards his/her degree objective, and if the proposed outside work will jeopardize that progress. A student who is working outside the department will be held to the same standards as one who is not.

Withdrawal & Readmission

A student who wishes to terminate his or her Program of study should confer with the DGS and the Associate Dean of the Graduate School regarding withdrawal. A student who has withdrawn from the Graduate School in good standing and who wishes to resume study at a later date must apply for readmission. Neither readmission nor financial aid is guaranteed to a student who withdrew. The deadline for making application for readmission is January 2 of the year in which the student wishes to return to the Graduate School.

Tuition

Tuition and Continuing Registration Fees are normally covered by sources of financial aid, as described below. For each Ph.D. student full tuition is charged for four years (eight semesters), except in the case of students who complete all degree requirements (including submission of the dissertation) in less than four

continuous years from the date of matriculation in the Ph.D. Program. In such cases, full tuition is charged only through the term in which the dissertation is submitted.

Once the tuition requirement has been met, the student is expected to continue registering until the dissertation is submitted or the terminal date is passed. A continuous registration fee is charged for each term after the tuition requirement has been met.

Students who are considering a leave of absence or registration in absentia should consult the Graduate School to determine how this would affect tuition charges.

Financial Aid

The Department of Cellular and Molecular Physiology attempts to ensure that all its registered Ph.D. students receive adequate financial aid. Because aid levels are budgeted annually, no particular level can be guaranteed for aid in subsequent years. Our expectation, however, is to maintain support at least at the level of the current year.

A. Sources of Support

All students receive support for full tuition and a stipend for 12 months. The stipend for the year 2013-2014 is \$32,500.

Sources of outside support frequently utilized by students in the biological and biomedical sciences are listed below:

1) Students Should Be Encouraged to Apply for Individual Fellowships:

Numerous fellowships, administered by federal or private sources, are available to graduate students in the Biological Sciences.

<http://bin.yale.edu/%7Eetb6/fdb-index.html> The Department strongly encourages students to seek external fellowships, as a mechanism for enlarging and strengthening the Graduate Program. Students who obtain external fellowships receive a larger total stipend.

The most popular and attractive fellowships in recent years have been those awarded by the National Science Foundation

<http://bin.yale.edu/~etb6/fdb/fellowships/1081049966-17924-71.html>

and the National Institutes of Health

<http://bin.yale.edu/~etb6/fdb/fellowships/1081049966-17924-70.html>

Individual U.S.P.H.S. National Research Service Awards may provide support to a student for a maximum of four years. Acceptance of these awards obligates the student within two years after completion of doctoral training either (a) to engage in biomedical or behavioral research or teaching in academic, governmental, or private (including industrial) facilities, for a period equal to the period of support, or (b) if suitable teaching or research jobs are not available, to engage in a health-related activity or alternative service, appropriate to the student's education or training, for a period equal to the period of support. Failure to comply with these provisions obligates the student to pay back the sum received for training.

Application materials for these two Programs are available on the appropriate website.

2) Research Assistantships:

Research grants and contracts awarded by outside agencies to support the research projects of individual faculty members may contain funds for Research Assistantships that can be held by graduate students. This is the usual way by which a Thesis Advisor supports a student, starting in the third year. Research Assistantships are appropriate only for students who are fully engaged in dissertation research.

B. Payment of Stipend:

Checks for U.S.P.H.S. Traineeships and for University Fellowships are paid in equal biweekly installments at the **beginning** of each two-week period and cover the calendar year.

Checks for salaried positions, such as Research Assistantships, are paid at the **end** of the two-week period. Therefore, any student who is transferred from a fellowship to an assistantship will have a one-time *one-month gap* between checks.

C. Taxation

The University does not withhold federal or State of Connecticut income taxes from U.S.P.H.S. Traineeships and University Fellowships. Students are responsible for reporting to the IRS and the State of Connecticut Department of Revenue Services any stipend income that is properly taxable. Students who are not subject to withholding may be required to file quarterly estimates tax payments with the Internal Revenue Service and the State of Connecticut. Failure to file may result in interest and penalty assessments.

When a student is going off a training grant or a University Fellowship to become a Research Assistant, he/she should be certain to file a W-4 form either at the Department Business Office or at the Payroll office, to ensure that the proper amount of Federal and State withholding is taken out of his/her paycheck.

D. Loans

For information on the various types of graduate student loans, consult the Financial Aid Office (HGS; 203-432-2739). This Office can provide short-term loans during temporary financial crises (for example, if a stipend check is delayed or if a student transfers from a fellowship to an assistantship). The Office also has up-to-date information on federally sponsored student loan plans. For more information, see the website at <http://www.yale.edu/graduateschool/financial/index.html>.

E. Other Expenses

Second year students in the Department of Cellular & Molecular Physiology receive a maximum of \$300 per year towards the expense of travel to scientific meetings. See the departmental Registrar for proper procedure. Unspent travel allowance of the first year may not be carried over to the second year.

Responsible Conduct of Research and Plagiarism

Although academic dishonesty has not been a substantial problem in the Graduate School, instances of plagiarism and research misconduct have occurred every year for some time. Recognizing this fact, the Graduate School has thought that a pro-active approach would best educate students and prevent plagiarism and research misconduct. The Graduate School has joined the Center for Academic Integrity <http://www.academicintegrity.org/>. The department of Cellular & Molecular Physiology upholds the University's policy on scientific integrity and plagiarism which can be found on the graduate school's website at <http://www.yale.edu/graduateschool/academics/ethics.html> Accordingly, the Molecular Medicine Pharmacology Physiology track mandates completion of the course C&MP650/PATH 660/PHAR580 *Ethics* and the Online RCR module (see page 16-17).

Additionally, the BBS provides a booklet entitled "Sources Their Use and Acknowledgement" from Dartmouth College (1998), Hanover, New Hampshire. This booklet can also be found on the Dartmouth College website at <http://www.dartmouth.edu/~writing/sources/>.

We encourage graduate students and faculty to discuss issues of academic integrity openly, especially as they are emerging within their disciplines.

Students may also wish to check the following websites:

American Society for Biochemistry and Molecular Biology: Code of Ethics: <http://www.asbmb.org/Page.aspx?id=70&terms=code+of+ethics>

Office of Science and Technology Policy [Federal]: <http://www.ostp.gov>

U.S. Department of Health and Human Services, Office of Research Integrity: <http://ori.dhhs.gov/education/>

U.S. Department of Health and Human Services, Training in the Responsible Conduct of Research: <http://grants.nih.gov/training/responsibleconduct.htm>
(Note that this website contains many links to excellent programs in the responsible conduct of research in the sciences.)

Council of Graduate Schools, Responsible Conduct of Research Initiatives: <http://www.cgsnet.org/Default.aspx?tabid=163>

OVERSIGHT

A. Policy and Personnel

Educational policy for the Graduate Program in Cellular and Molecular Physiology is made and periodically reviewed by the Graduate Education Committee of the Department and the whole faculty of the Department. Functioning of the Program is supervised by the Director of Graduate Studies (DGS), Emile Boulpaep (B-163C SHM, 203-785-4055), with the advice and assistance of the Committee on Graduate Education, which consists of:

Michael Caplan, C&MP Chair	(B-116 SHM)
Michael Nitabach	(BE-29 SHM)
Fred J. Sigworth	(BE-23 SHM)
Clifford Slayman	(B-128 SHM)
David Zenisek	(B-114 SHM)
Emile L. Boulpaep, Director of Graduate Studies	(B-163C SHM)

Finances are handled by Joseph DePonte and Renata Musial (B-147 SHM); day-to-day operation of the Program is administered by the Registrar, Leisa Strohmaier (B-147 SHM, 203-785-4041).

B. First-year Students

First-year students most likely belong to the Molecular Medicine Pharmacology Physiology (MMPP) track. The MMPP Track Director for 2013-2014 is:

Elias Lolis (B-345 SHM)

Students should discuss their curriculum needs, prospective courses, and relationships to Graduate School, future degree-granting department, and Track requirements with their individual advisor and the track Director before submitting their Fall and Spring Course Selection online.

C. Second-year Students

Second-year students who have begun thesis research and selected the Graduate Program in Cellular and Molecular Physiology as the degree-granting program should discuss their curriculum needs, prospective courses, program requirements and relationships to Graduate School with the Director of Graduate Studies of Cellular and Molecular Physiology:

Emile L. Boulpaep (B-163C SHM)

D. Advanced Students

For students who have completed the qualifying examination, their Thesis Advisor serves as primary advisor, assisted by the Thesis Advisory Committee. The student must meet with the Thesis Advisory Committee at least semi-annually, unless circumstances dictate more frequent meetings. The student will be responsible for scheduling his/her Thesis Committee semi-annual meetings.

E. Thesis Advisory Committees

The Thesis Advisory Committee has primary responsibility for objectively advising the student on the quality and direction of his/her thesis research, as well as for providing assistance with specific problems.

The Thesis Advisory Committee plays a number of roles:

- (1) To provide a source of scientific expertise. A major role of the Thesis

Advisory Committee is to provide advice to the student from a variety of perspectives beyond those available in the advisor's laboratory.

(2) To advise students and inform advisors as to general thesis directions. It is not unusual, for instance, for the Committee to recommend a more focused and less ambitious project than that which is outlined.

(3) To determine when the student is ready to present a prospectus, or to defend the thesis. The section "Dissertation" (on page 23) specifically addresses the latter point.

(4) To provide a critical practice-presentation audience in front of which a student can hone presentation skills.

(5) To evaluate the progress of the thesis, and to provide feedback to the Graduate Education Committee on a semi-annual basis.

Thesis Advisory Committees should consist of 3 (or 4) faculty members; the advisor is not a member of the committee. The Thesis Advisor is not a member of the committee, but is expected to attend all committee meetings. Additionally, the Thesis Advisor mentors the student on an ongoing basis. If the Thesis Advisor *is not* a primary faculty appointee in the C&M Physiology department, at least one member of the Thesis Advisory Committee *must* be a primary faculty appointee in the C&M Physiology department. If the Advisor *is* a primary faculty appointee in the C&M Physiology department, at least one member of the Thesis Advisory Committee must be a faculty member of the C&M Physiology department.

Each Thesis Advisory Committee should have a Chairperson, selected from one of the C&M Physiology faculty members. The Chairperson will oversee the conduct of the semi-annual meeting, and provide written feedback to the departmental Registrar for the student's file.

E. Evaluation of Progress

The Department encourages students to maintain frequent informal discussions with the DGS and other members of the Graduate Education Committee, with course instructors, and with their Thesis Advisor and members of their Thesis Advisory Committee. Such informal discussions are an important mechanism to give students an accurate, continuing sense of their progress. In addition, the Graduate School requires the Department to evaluate progress formally at the end of every academic year. For first and second year students, evaluation is based primarily on performance in courses, laboratory rotations, the qualifying examination, and the prospectus. The DGS prepares a summary evaluation and annual meetings with the DGS are scheduled in the spring to discuss progress. At any time that serious deficiencies are discovered, the DGS will provide the student with a written report describing the deficiencies and suggesting possible remedies.

In later years the Thesis Advisor and Thesis Advisory Committee report to the Graduate Education Committee on progress of the student's thesis research (e.g., written report by the Committee Chairperson). Students admitted to candidacy must submit online in May a self-assessment through the annual Dissertation Progress Report (DPR). Students file the Dissertation Progress Report by logging in to the Dissertation Progress Report tool <http://www.yale.edu/sis/dpr/> using their NetID. Subsequently, the Thesis Advisor attaches online his/her comments to the Dissertation Progress Report and answers a number of questions regarding the student's progress. Finally, the DGS attaches online his comments to the Dissertation Progress Report.

CURRICULUM REQUIREMENTS AND PROCEDURES

A. *Formal Course Requirement*

The first one and one-half to two years of graduate study are normally spent in formal course work, independent reading, and exploratory research rotations, all of which should lay a foundation for the dissertation. The student should consult with the DGS, individual advisors, and members of the Graduate Education Committee to design a suitable Program of courses.

In the first year, each student of the Molecular Medicine Pharmacology Physiology (MMPP) track will be matched with an advisor who is a member of the MMPP Track. This faculty member has the responsibility to advise the student who has not yet begun thesis research. The student is expected to design a suitable Program of courses in consultation with the advisor and the Track Director.

Students enrolled in the Cellular and Molecular Physiology Graduate Program are **required to take at least six graduate-level courses** in the first year and a half to two years. Three courses are **mandatory**, two other advanced courses are selected from a **recommended** list, and one is fully **elective**. The courses should form a coherent background for the expected area of dissertation research.

All course selections are made online by the student at the following website: <http://students.yale.edu/oci/search.jsp> The course selections made online by the students must be approved online by the Director of Graduate Studies.

1. **Mandatory Courses**

The mandatory course work will be taken by all students in the Cellular and Molecular Physiology Graduate Program allowing them to acquire a broad knowledge of interrelated physiological and pathophysiological mechanisms at diverse levels of understanding: whole-organism, system, organ, tissue, cell, subcellular components and molecules.

C&MP 550a/PHAR 550a: Physiological Systems

C&MP 560b: Cell and Molecular Physiology: Molecular Machines
in Human Disease

C&MP 630a/PATH 680/ PHAR 502: Seminar in Molecular Medicine,
Pharmacology & Physiology

<http://medicine.yale.edu/physiology/education/bbs/curriculum.aspx>

Students with extensive prior training in systems physiology may be exempted from C&MP 550a/PHAR 550a in consultation with the Director of Graduate Studies. If a student exempts C&MP 550a/PHAR 550a, then three courses instead of two must be selected from the recommended courses listed below.

In addition, all graduate students are required to take:

C&MP 650/PATH 660/PHAR 580: Ethics

This course should be taken in the Spring of the first year and does not count toward the six-course requirement.

Responsible Conduct of Research (RCR) module

As part of an initiative to promote the values that underlie academic integrity, the Graduate School has designed an online module to help educate students about ethical practices in research and writing. The Responsible Conduct of Research (RCR) module focuses particularly on how to acknowledge the research and scholarship of others and on appropriate procedures in the conduct of research. The module will be required as part of the online registration process. All current graduate students will need to complete the module to register. Students need complete the module only once while at Yale. The module should take no more than about twenty minutes to complete. It is not scored. Only the student's completion of the module will be logged. You may go to the RCR module directly by clicking

https://www.sis.yale.edu/pls/rcr/login_c_pkg.go_to_front_door
or when you access the online course selection application at registration. You will need to use your NetID and password.

2. Recommended Courses

At least three courses should be selected from the recommended courses listed below. Consult the Online Course Information at <http://students.yale.edu/oci/search.jsp> or the 2013-2014 Yale Bulletin at <http://www.yale.edu/printer/bulletin/htmlfiles/grad/index.html> on Programs and Policies of the Graduate School for exact descriptions, course numbers and meeting times.

BENG 351a	Biomedical Engineering I
BENG 355a	Biomedical Engineering Lab
BENG 410a	Physical and Chemical Basis of Bioimaging and Biosensing
BENG 434	Biomaterials
BENG 445	Biomedical Image Processing
C&MP 570b	Sensory Physiology
C&MP 600	Medical Physiology Case Conferences
C&MP 620	Fundamentals in Neurophysiology
C&MP 710b	Electron Cryo-Microscopy for Protein Structure Determination
C&MP 750	Research Topics in the Neurobiology of Learning and Memory
CBIO 601a	The Molecular and Cellular Basis of Human Disease
CBIO 602a & 603a	Molecular Cell Biology and Seminar Molecular Cell Biology
CBIO 604	Systems Cell Biology
CBIO 606b	Advanced Topics in Cell Biology
CBIO 611b	Vascular Cell Biology
CBIO 701b	Illuminating Cellular Function
ENAS 502b	Stochastic Processes
ENAS 505a	Advanced Engineering Mathematics
ENAS 509a	Electronic Materials: Fundamentals and Applications
ENAS 510a	Physical & Chemical Basis of Bioimaging and Biosensing
ENAS 511b	Photonics and Optical Electronics
ENAS 521a	Classical and Statistical Thermodynamics
ENAS 534a	Biomaterials

ENAS 551a	Biotransport and Kinetics
ENAS 553a	Immuno-Engineering
ENAS 555b	Vascular Mechanics
ENAS 575a	Computational Vision & Biological Perception
ENAS 580a	Clinical Research in Biomedical Engineering
ENAS 585a	Fundamentals of Neuroimaging
ENAS 610a	Biomolecular Engineering
ENAS 704a	Theoretical Fluid Dynamics
ENAS 711b	Biomedical Microtechnology and Nanotechnology
ENAS 812b	Molecular Transport & Intervention in the Brain
ENAS 821b	Physics of Medical Imaging
ENAS 825b	Physics of Magnetic Resonance Spectroscopy in Vivo
ENAS 836a	Biophotonics & Optical Microscopy
ENAS 880a	Imaging Drugs in the Brain
ENAS 915b	Tracer Kinetics and Modeling
ENAS 938b	Neural Networks for Pattern Recognition, Identification and Control
GENE 625a	Basic Concepts of Genetic Analysis
GENE 645a	Statistical Methods in Human Genetics
GENE 655a	Stem Cells: Biology and Application
GENE 703b	The Mouse in Biomedical Research
GENE 705a	Molecular Genetics of Prokaryotes
GENE 743b	Advanced Eukaryotic Molecular Biology
GENE 749a	Medical Impact of Basic Science
GENE 760b	Genomic methods for Genetic Analysis
GENE 777b	Mechanisms of Development
GENE 840a & 840b	Medical Genetics (clinical rotation)
IBIO 530a	Biology of the Immune System
IBIO 531b	Advanced Immunology
IBIO 532b	Inflammation
IBIO 536a	Advanced Immunology Seminar: Mucosal Immunity and Microbiome
IMED 630a	Practical & Ethical Issues in Clinical Investigation
MBIO 680a	Molecular and Cellular Processes of Parasitic Eukaryotes
MBIO 685b	Molecular Mechanisms of Microbial Pathogenesis
MBIO 686a	Bacterial Determinants of Pathogenesis
MB&B 420a	Macromolecular Structure
MB&B 425a	Basic Concepts of Genetic Analysis
MB&B 449a	Medical Impact of Basic Science
MB&B 523a	Biological Physics
MB&B 600a & 601b	Principles of Biochemistry I & II
MB&B 602a	Molecular Cell Biology
MB&B 625a	Basic Concepts of Genetic Analysis
MB&B 630b	Biochemical and Biophysical Approaches in Molecular and Cellular Biology
MB&B 635a	Mathematical Methods in Biophysics
MB&B 720a	Macromolecular Structure and Biophysical Analysis
MB&B 722b	Optical Spectroscopy of Biomolecules
MB&B 723b	Macromolecular Interactions: Atoms to Networks
MB&B 743b	Advanced Eukaryotic Molecular Biology
MB&B 749a	Medical Impact of Basic Science
MB&B 752a1	Bioinformatics: Practical Application of Data Mining
MB&B 752a2	Bioinformatics: Practical Application of Simulation
MB&B 760b3	Principles of Macromolecular Crystallography
MB&B 800a	Advanced Topics Molecular Medicine
MCDB 500b	Biochemistry
MCDB 570b	Biotechnology
MCDB 602a	Molecular Cell Biology
MCDB 625a	Basic Concepts of Genetic Analysis
MCDB 630b	Biochemical & Biophysical Approaches in Molecular and Cellular Biology

MCDB 670b	Advanced Seminar in Biochemistry and Genetics
MCDB 677b	Mechanisms of Development
MCDB 720a	Neurobiology
MCDB 743b	Advanced Eukaryotic Molecular Biology
MCDB 752a	Bioinformatics: Practical Application of Simulation and Data Mining
NBIO 500b	Structural and Functional Organization of the Human Nervous System
NBIO 501a	Principles of Neuroscience
NBIO 507b	Cellular and Molecular Mechanisms of Neurological Disease
NBIO 510a	Introduction to Methods in Cellular & Molecular Neurobiology
NBIO 511a	Introduction to Techniques Used in Electrophysiological Analysis at the Cellular Level
NBIO 532a	Neurobiology of Cortical Systems
NBIO 570b	Sensory Physiology
NBIO 610b	Fundamentals in Neurophysiology
NBIO 720a	Neurobiology
NSCI 501a	Principles of Neuroscience
NSCI 507b	Cellular and Molecular Mechanisms of Neurological Disease
NSCI 510b	Structural and Functional Organization of the Human Nervous System
NSCI 521b	Neuroimaging in Neuropsychiatry
NSCI 539b	Synaptic Organization of the Nervous System
NSCI 540a	Introduction to Statistics
NSCI 580a	The MAP Kinase Pathway and Cognitive Disorders
NSCI 585a	Stem and Progenitor Cells in the Adult Nervous System
NSCI 600a	Experimental Methods in Neuroscience
NSCI 648	Cellular Analysis: Learning & Memory
NSCI 720a	Neurobiology
PATH 600a	Pathological basis of Human Disease
PATH 618b	Clinical and Pathological Correlates in Renal Disease
PATH 630b	Biomaterial-Tissue Interactions
PATH 650b	Cellular and Molecular Biology of Cancer
PATH 670b	Biological Mechanisms of Reaction to Injury
PATH 680	Seminar in Pharmacology & Molecular Medicine
PATH 690a	Molecular Mechanisms of Disease
PHAR 504a	Principles of Pharmacology
PHAR 528b	Principles of Signal Transduction
PHAR 529b	Structural Pharmacology
PHYS 523a	Biological Physics

3. Elective Courses

One course is fully elective and is chosen in consultation with the student's advisor. The elective course can be any course in the graduate school or may be an additional selection among the list of recommended courses.

4. Courses Outside Yale

Students may find it useful to take courses and/or workshops outside Yale University, for example at the Marine Biological Laboratory, Woods Hole, Massachusetts, or at Cold Spring Harbor, New York. These would normally occur during the summer term, and students contemplating such courses should apply for the announced scholarships and fellowships. Ordinarily, outside courses cannot *per se* satisfy Department or Graduate School requirements, but they can be a very important part of the individual student's training.

B. Grades

Course grades for regular term courses in the Graduate School are recorded as Honors, High Pass, Pass, and Fail; and for research or seminar courses, as Satisfactory or Unsatisfactory. The minimum requirement of the Graduate School for course performance is a grade of **Honors** in two regular term courses, which *must* be met by the end of the 2nd year (see *Graduate School Programs and Policies*). Tutorials, informal seminars, research courses, and term courses having fewer than 3 credit hours cannot be used to fulfill the Honors requirement.

C. Second Year Activities

Course work may continue in the third semester, and possibly into the fourth semester. In the third semester, students will review their overall educational plans and decide on the areas for directed reading in preparation for the Qualifying Examination. Ideally, the qualifying examination may be taken in the third semester but must be taken before the end of the fourth term.

D. The Qualifying Examination

C&M Physiology graduate students must complete the qualifying examination by the end of the fourth term, but in no case will the deadline be extended beyond the 5th term of study. The purpose of this examination is to ensure breadth and depth of a student's preparedness to pursue thesis research. The examination consists of three parts; a directed reading period, written research proposal, and formal examination. In consultation with the Director of Graduate Studies, the student selects two "reading faculty" members and one "writing faculty" whose own expertise is relevant to the anticipated thesis topic. At least one of these faculty members should be a primary faculty member of the C&M Physiology department.

1. Directed Reading

With each of the two "reading faculty" the student undertakes a directed reading period in a selected area of physiology. The readings should challenge the student to broaden and deepen comprehension of fields related to the chosen research area. At the conclusion of each reading period the student prepares written answers to examination questions submitted by the "reading faculty" member.

2. Written Research Proposal

The student prepares a research proposal (following the Qualifying Exam Research Proposal guidelines found on page 21 of this handbook) in

collaboration with the “writing faculty” member. The role of this faculty member is to provide the student with guidance in effectively organizing and expressing the background, aims and methodology of a research proposal. The written proposal provides the focus for a formal examination.

3. Formal Qualifying Examination

The Thesis Advisor and both reading and writing faculty members should attend the formal Qualifying Exam.

A public presentation of the proposal by the student is followed by an oral examination session by the Qualifying Examination Committee consisting of the “reading” and “writing” faculty members plus at least one additional C&M Physiology faculty member. At least one member of the examining committee should be a member of the departmental Graduate Education Committee, most often the Director of Graduate Studies. The student is expected to demonstrate a comprehensive understanding of the scientific context and experimental strategy of the proposal and topics covered in the reading periods. Questioning during the examinations should extend beyond the limits of the proposal as necessary to determine the strengths and potential deficiencies of the student’s preparation.

After the student’s public presentation of the proposal and questioning, the usual procedure is for the Qualifying Examination Committee to meet without the student to discuss the proposal and assess the student’s overall performance. When the student returns, the Qualifying Examination Committee reports its evaluation and transmits specific advice, feedback and recommendations.

4. Overall Qualifying Exam Timeline

The Qualifying Examination must be completed by the end of the fourth term, May 31. Extensions must have prior approval of the DGS. A timeline for the exam is as follows:

- Choose reading and writing faculty for Qualifying Examination Committee
- No later than the beginning of fourth term: meet with advisor and DGS to discuss the exam
- No later than the beginning of fourth term: meet with “reading faculty”
- Write proposal in collaboration with the “writing faculty”
- Hand in proposal to Qualifying Examination Committee, Advisor, DGS and Graduate Program Registrar
- No later than the end of fourth term (May 31) --- oral examination

5. Qualifying Exam Research Proposal – Outline

Title Page (includes committee members & roles)

Introduction // Project Summary

A. Specific Aims (State the specific purpose of the research proposal and the hypotheses to be tested)

1., 2., 3.

B. Background and Significance (Sketch briefly the background to the proposal. State concisely the importance of the research described in the proposal by relating the specific aims to broad, long-term objectives)

1., 2., 3.

- C. Preliminary Results
 - 1., 2., 3.
- D. Experimental Plan
 - 1., 2., 3.
 - a. Research Design and Methods
 - b. Possible Outcomes
 - c. Limitations and Alternatives
- E. Future Directions
- F. References

G. Thesis Advisory Committee

It is anticipated that, following their participation in the qualifying examination, the “reading” and “writing” faculty may continue as the student’s Thesis Advisory Committee. At least one of these faculty members should be a *primary* faculty member of the C&M Physiology department.

H. Dissertation Prospectus

Yale Graduate School requires all students to submit a written outline of proposed thesis work. (Guidelines for this are contained in the Graduate School Programs and Policies <http://www.yale.edu/printer/bulletin/htmlfiles/grad/index.html>) For the Program in Cellular and Molecular Physiology, a written synopsis of the thesis proposal as formulated and approved at the time of the qualifying examination, is usually submitted to the Graduate School as the student’s Dissertation Prospectus.

I. Later Years

From the third year onward, students will spend most of their time on the dissertation research, but should continue to take advantage of relevant advanced courses and seminars as they are offered. A meeting with the members of the student’s Thesis Advisory Committee will be held each semester. The Registrar will schedule these meetings.

The first meeting of the Thesis Advisory Committee will occur at least by the fall semester of the third year (i.e., before December 31). Prior to the first meeting, the student should prepare an outline of the proposed research, along with background and references. The outline should be distributed to the Committee members one week prior to the meeting as the basis for a brief oral presentation to, and discussion with, the Thesis Advisory Committee. Subsequent Thesis Advisory Committee meetings should occur twice a year at six month intervals (i.e., before June 30 and December 31). The Registrar will schedule these meetings.

The format of the semi-annual meetings will be as follows:

- (1) Project presentation and discussion (about 45 minutes). The advisor is invited to attend but is expected to refrain from joining the discussion. An important aspect of these presentations is that the student develop skills of “thinking on his/her feet” and demonstrate an ability to develop a project with a degree of independence. (*Advisors who cannot refrain from joining this discussion should absent themselves from the project presentation. Chairpersons are requested to intercede in this regard if necessary.*)
- (2) Discussion with the student, advisor absent (5-15 minutes).
- (3) Discussion with the advisor, student absent (5-15 minutes).

The Registrar will provide to the committee chairperson a Thesis Advisory Committee Meeting Report form before each meeting. The chairperson will complete the report, detailing an evaluation of the student's progress thus far, and return the signed form to the Registrar who procures the DGS signature and will retain the form in the student's file.

J. Teaching Requirement

Teaching experience is an important part of graduate training in Cellular and Molecular Physiology. Students are expected to assist in teaching two course- semesters and at least at the level of Teaching Fellow II. The list of available teaching fellowship positions in graduate and undergraduate-level courses is updated every year by the BBS. First-year students are not allowed to teach. It is required that all TA Selection Forms be approved and signed by the student advisor and the DGS. The BBS and the Department of Cellular & Molecular Physiology require that **each** student take the "Teaching At Yale Day" seminar – offered this year on August 26, 2013 – before fulfilling their Teaching Requirements. A good resource for teaching guidelines can be found in the Becoming Teachers Handbook online at http://www.yale.edu/graduateschool/teaching/forms/Becoming_Teachers.pdf

K. Admission to Candidacy

The Graduate Education Committee will admit a student to candidacy when all the following pre-dissertation requirements have been fulfilled (usually by the end of the third year):

- Course Requirement
- Honors Requirement
- Qualifying Examination
- Dissertation Prospectus
- Teaching Requirement
- Satisfactory Thesis Advisory Committee Reports

Students admitted to candidacy must submit online in May, a self-assessment through the annual Dissertation Progress Report (DPR) <http://www.yale.edu/sis/dpr/>.

L. Dissertation

During the last 9-12 months of thesis research, the student should maintain especially close communication with his/her advisor and Thesis Advisory Committee, in order to set out the content and composition of the thesis efficiently.

At least two months before he/she intends to petition the Graduate School for the Ph.D. degree, the candidate should inform the DGS, who then asks the Thesis Advisory Committee to provide a list of readers, including the outside reader, whom the DGS will officially invite. The dissertation will be judged by a committee of at least three readers, usually the members of the Thesis Advisory Committee (but **not** the Thesis Advisor), and subsequently by one reader from outside Yale University.

The dissertation must describe original research making significant new contributions to knowledge. Its form and content should be of the quality expected of papers submitted to major scientific journals. The Graduate School should be consulted for detailed instructions on the format of the dissertation. The dissertation office puts out a handbook with detailed format description (including forms) that is available from your Departmental Registrar.

1. Pre-defense

Prior to defending the thesis, the student will supply copies of the thesis to the Thesis Advisory Committee, and hold a pre-defense oral presentation before the Thesis Advisory Committee and the primary faculty members of Cellular and Molecular Physiology. A complete draft of the thesis will be provided to Committee members at least **two to three** weeks before the pre-defense, and two extra copies will be made available to interested faculty through the Departmental Registrar; a copy will also be sent to the outside reader at this stage. This meeting includes a full "practice-run" of the defense presentation. It is intended to iron out rough spots, and to identify important problems in the presentational aspects of the thesis.

At the conclusion of the pre-defense meeting, the Thesis Advisory Committee will decide whether the thesis is ready to be formally defended, with anticipated revision if necessary. If so, the defense date can then be announced.

Individual Thesis Advisory Committee members will note any problems identified at this meeting (briefly) on paper. The outside reader may have communicated suggestions as well. The student should make requested revisions in the thesis, to be completed preferably by the time of the defense.

2. Defense

The actual defense date should be tentatively scheduled well in advance and tentative arrangements made with the outside reader (by the DGS). Announcements of the defense date will not be made, and the plane flight for the reader will not be guaranteed, until the Thesis Advisory Committee has given the go-ahead at the conclusion of the pre-defense. This places a practical *minimum* of two weeks between the pre-defense Committee meeting and the formal oral defense.

The oral defense is an open, public presentation before the readers, the faculty of the Department, other students, and interested guests. Following the usual period of general questioning, the other students and guests are asked to leave, and discussion continues among the student, the readers, and the Department faculty. When that discussion is finished, the student is asked to leave. The faculty then deliberates and votes whether to accept the thesis (with or without specific alterations), or to remand it to the student for further work. That judgment is based on the quality of the oral presentation, the student's ability to defend his/her arguments, and the readers' verbal evaluation of the written thesis.

When the vote is to accept the thesis, the student formally petitions the Graduate School for the Ph.D. degree. The Petition includes:

- (a) Payment of a small fee;
- (b) One unbound copy of the completed thesis (now containing all changes requested by the readers and faculty) on acid-free paper – this copy the Graduate School will have bound for the library copy;
- (c) If necessary final-version softbound copies, which the Graduate School will send to the Readers, along with the formal Reader's Report. This Petition must be submitted by **October 1, 2013** (for a December 2013 award of degree), or **March 14, 2014** (for a May

2014 award of degree).

Meanwhile, the list of names and addresses of the readers will be sent to the Graduate School Registrar by the DGS. The Graduate School solicits a Reader's Report from each reader, on the basis of the final version of the thesis. The Readers return copies of these reports to the Graduate School Registrar, who forwards a copy of the reports to the DGS, who then certifies the Department's approval of the Ph.D. award.

Before departing, the student should provide three unbound copies of the completed thesis to the Department Registrar (on acid-free paper), who will have them hardbound. One each hardbound copy is for the student, the Thesis Advisor, and the Department.

M. *M.D./Ph.D. Students*

Questions concerning the M.D./Ph.D. Program should be taken to the director of that Program, James Jamieson (214 ESH, 203-785-4403). Special curriculum needs of individual students may also be discussed with the DGS/DMS Emile L. Boulpaep (B-163C SHM, 203-785-4055).

Specific Requirements for M.D.- Ph.D. students:

- a. Students must take at least three graduate-level courses for a grade in addition to the courses that are already part of the Yale Medical School M.D Program.
- b. One C&MP course is required: preferably C&MP 560b, Cellular and Molecular Physiology: Molecular Machines in Human Disease. In addition, M.D.-Ph.D. students in Cellular and Molecular Physiology must take two recommended graduate-level courses outside the regular medical school curriculum, subject to approval by the DGS.
- c. Two grades of Honors. Graduate courses that are part of the Yale Medical School M.D Program and taken for a grade may be counted towards the Honors fulfillment.
- d. Two rotations in two different laboratories over one summer. Each rotation should last five weeks.
- e. One semester of teaching at least at the level of Teaching Fellow II.

General Requirements for M.D./ Ph.D. students:

Policies with regard to Thesis Advisor, Qualifying Examination, Thesis Advisory Committee, Dissertation Prospectus, Admission to Candidacy, Dissertation pre-defense and defense are the same as described above for Ph.D students.

N. *Master's Degree*

Although the Department does not admit students for terminal master's degrees, the rules of the Graduate School provide for optional awarding of a Master degree during the progress of graduate study.

A student leaving the Ph.D. Program after one year of residence in good standing, and having successfully passed at least four semester courses, including two Honors grades, and three successful laboratory rotations, may elect to receive a

terminal Master of Science (M.S.) degree upon withdrawal from the Departmental Program.

Any student who has fulfilled all the requirements for the Ph.D. except the prospectus, teaching requirements, and dissertation may elect to receive the Master of Philosophy (M.Phil.) degree, normally at the end of the second year. Once the Ph.D. has been awarded, the M.Phil. is of little significance. However, if for personal reasons any eligible student wishes to obtain the M.Phil. degree, he/she may download the application online at <http://www.yale.edu/graduateschool/academics/forms/degreePetition.pdf> or see the department Registrar (SHM B147).

O. *Publications*

The Graduate School requires that subsequent publication of thesis results as papers should include a statement to the effect that the paper(s) is(are) based upon "a dissertation submitted to fulfill in part the requirements for the degree of Doctor of Philosophy in Yale University".

Training grants also require the following statement to be included in publications: "This investigation was supported by National Research Service Award no. _____, from the National Institute of _____.

Other grants, which the student has received (e.g., NSF, American Heart Association), and supporting faculty research grants, should be similarly acknowledged. The departmental Business Office can supply the explicit grant information.

P. *Residence Requirement and Time Limit*

Students are required by the Graduate School to be in residence in the New Haven area for a minimum of three academic years. However, all Ph.D. candidates are charged four years of full tuition. Six years is normally sufficient for completion of the Ph.D., and this is the normal maximum period of enrollment. Both the Department and the Associate Dean must approve an exception to the residence requirement. The maximum time may, if the Associate Dean gives approval, also be extended by special petition, but only if the student is making good progress and if all requirements for the Ph.D. (including submission of the Prospectus) have been fulfilled, except for completion of research and submission of the thesis.

MISCELLANEOUS INFORMATION

A. *Other Training Activities*

- All students are expected to participate in the following training activities for the entire time they are in the Program, whether as first year students in the Physiology and Integrative Medical Biology Track or in following years as students in the Cellular and Molecular Physiology Graduate Program.
<http://medicine.yale.edu/physiology/education/activities/index.aspx>
- “Research in Progress Reports” on Mondays twice monthly.
<http://medicine.yale.edu/physiology/education/activities/rip.aspx>
- Weekly “Seminar in Cellular and Molecular Physiology” on Thursdays
<http://medicine.yale.edu/physiology/education/activities/seminars.aspx>
- Journal Club and laboratory meetings of the laboratories in which they are rotating or doing research
- Annual Retreat in Cellular and Molecular Physiology
<http://medicine.yale.edu/physiology/education/activities/retreat.aspx>
- A course on ethics in research: e.g. MB&B 676b Responsible Conduct of Research

B. *Lectures, Seminars and Journal Clubs*

In addition to their formal courses and seminars, most graduate students will find on the Yale campus a large number of relevant research seminars, journal clubs, retreats, and symposia. Students should form the habit of watching the following:

- C&M Physiology Departmental website <http://medicine.yale.edu/physiology/>
- YSM Event Calendar <http://tools.medicine.yale.edu/calendar/>
- The Yale Bulletin http://opa.yale.edu/bulletin/yale_bulletin.aspx
- Cellular & Molecular Physiology’s departmental bulletin board (located on the first floor B wing of SHM) where all seminar announcements received in the Department Office are posted.

The Department itself sponsors several events. Students are expected to attend departmental seminars, Research in Progress, and at least one journal club on a regular basis.

- 1) **Departmental Seminar:** This is held weekly: Thursday at 4:00 p.m., in the Cellular and Molecular Physiology Seminar Room (B-145 SHM), and is usually given by a visiting scientist. The choice of topics and speakers is determined by general interest; students are invited to make suggestions.
- 2) **Research in Progress:** Alternate Mondays at noon in the Cellular and Molecular Physiology Seminar Room (B-145 SHM). Two presentations, 30 minutes each, by students or postdoctoral fellows or associates.
- 3) **Departmental Retreat:** This is a very popular meeting held off-campus. It consists of lectures, posters, much informal discussion, and good food and drinks. The purpose is to bring the department together for in-depth discussions of research going on in the Department. This year’s retreat will be held at Yale’s West Campus on **Monday, October 28, 2013** from 8:30 – 5:30. All students are expected to attend.

Also, three other significant annual scientific events are sponsored by the Department:

- 4) **Peter F. Curran Lecture:** Named in memory of a distinguished biophysicist, this is a lecture in the area of membrane transport processes. This year's Curran Lecture is Dr. Amira Klip from the Hospital for Sick Children in Toronto on Thursday, October 31, 2013.
- 5) **Louis H. Nahum Lecture:** Named in memory of a former member of the department, this is a lecture in the general area of cardiovascular physiology. This year's Nahum Lecture is TBA.
- 6) **Robert Berliner Lecture:** Named in memory of a distinguished member of the department and former Dean of the School of Medicine, this is a lecture on renal physiology. This year's Berliner Lecture will be held on Thursday, April 17, 2014 and Dr. Hal Dietz from Johns Hopkins University will present.

C. **Libraries**

The main libraries around the Yale campus, which are of interest to students and faculty in Biological Sciences, are:

- 1) Medical Library (Sterling Hall of Medicine). Hours: Monday-Thursday, 8:00 am to midnight; Friday, 8:00 am to 10:00 pm; Saturday, 8:00 am to 8:00 pm; Sunday, 11:00 am to midnight (203-785-5354)
- 2) Kline Science Library (C floor of Kline Biology Tower). Hours: Monday - Thursday, 8:30 am to midnight; Friday - Saturday, 8:30 am to 10:00 pm; Sunday, 11:00 am to midnight (203-432-3439)

Both of these libraries are tied to Interlibrary Loan and can obtain volumes (or photocopies) of individual articles from other Libraries throughout the United States. Rarely used books from the Yale Libraries--including very old journal volumes, certain foreign-language journals, etc.--are stored in the Seeley Mudd Library (38 Mansfield St., in front of Ingalls Rink; 203-432-3203). They can be retrieved by courier on request to the other libraries but are accessed much more quickly in person. [Photocopying at Mudd Library is by coin-operated machine or by Sterling Library keycard.]

D. **The McDougal Graduate Student Center**

<http://www.yale.edu/graduateschool/mcdougal/>

The McDougal Center is a gathering place where graduate students, postdoctoral fellows, faculty and staff from across the campus regularly meet and share interests. It offers services, Programs, information resources and an informal place to relax or study. Its web site provides all kinds of information relating to graduate student life. The Center provides members of the graduate student community with a place of their own on campus.

The facilities of the McDougal Center enhance student life in many ways. The magnificently restored Common Room has been transformed into a lounge with comfortable furnishings, internet ports, newspapers and magazines, and a student-run cafe serving coffee and light food throughout the day.

In an adjacent wing on the first floor of HGS the Center has a large multi-purpose Program Room with a stage, seating for up to 100, and advanced video and sound projection equipment. The Program Room (119 HGS) provides space for lectures, conferences, performances, film series, workshops and other events by and for students. The Center also has smaller conference and meeting rooms. Graduate

student groups and departments may request to reserve space by contacting the office at 432-BLUE (123 HGS) or filling out a request on line.

There is a public computer cluster supported by ACS, a public copy machine, a public phone, bulletin boards and information kiosks as well. The lower floor also offers offices for the Assembly of Graduate Students, graduate student organizations, rooms for Teaching Fellows to meet with students, lockers for graduate student use and vending machines. The McDougal Center is open days, evenings, and weekends.

E. *Photocopying*

All campus libraries have photocopying machines for use with a local key-card. Different key-cards are used at each library. First year students can obtain cards keyed for the Medical Library photocopiers from the BBS office. Photocopying that is related to research in an advisor's laboratory is paid by funds of the advisor.

For non-library materials, a more convenient copier is available in the business office for members of the department. An access code number is needed for the copier in the business office.

The Libraries will also copy documents for you on request, but cost and time rise quickly in elaborate jobs. Be sure to inquire about this point before submitting a request for photocopying to one of the Libraries.

Bulk copying can be done by the Copy Center, which is located at SHM IE-96. For printing and copying jobs, documents saved as PDF files can be submitted on a Windows formatted disk. Alternatively, files can be printed directly by the Copy Center machines over the Yale network.

F. *Campus Computing*

Information Technology Services (ITS) <http://www.yale.edu/its> is located at 25 Science Park (203-432-9000). It includes computing, telecommunications, audiovisual, printing, and copying services. ITS operates campus computer clusters, provides Computing Assistants in clusters and residences and offers training courses and computer classrooms. The ITS website (listed above) provides information on all of its services.

G. *Departmental Facilities*

DEPARTMENTAL NETWORK SERVICES

Local network hardware support and e-mail services are coordinated by Duncan Wong (B-147 SHM 203-785-4049)

TEA ROOM

The Department of Cellular & Molecular Physiology has provided a departmental lounge, located in B-120A SHM. Cookies and coffee are available Wednesdays at 4:00 p.m.

H. *Graduate & Professional Student Senate*

The Life Science department of the Graduate School may appoint up to six students to the Graduate & Professional Student Senate (GPSS). This body discusses University-wide aspects of graduate and professional student affairs and makes recommendations to the deans of the graduate and professional schools, as well as the offices of the President, Secretary and Provost of the University, the Association of Yale Alumni, and the Yale Corporation. Through the GPSS, senators may hold positions on various university committees, including the

committee for investor responsibility and the committee on racial and ethnic harassment. The GPSS also runs the Graduate & Professional Student Center at Yale (GPSCY), and is responsible for all social and educational programming offered at the GPSCY.

The Senate meets twice monthly in the GPSCY (204 York Street, 203-432-2638), and its agenda may be obtained from the Recording Secretary. For further information, see the GPSS web page at <http://www.yale.edu/gpss>.

I. Graduate Student Assembly

The Graduate Student Assembly provides a forum for graduate students to address issues across the Graduate School and University. It consults with the dean and other administrators on proposed changes in Graduate School policy, raises concerns expressed by the student body, nominates the student members of all Graduate School standing committees, and administers a conference travel fund for graduate students. Representatives to the assembly are elected by students in individual departments and degree programs. Each department or program has at least one student representative, with additional representatives allotted proportionally by size of the student population.

J. Grievance Procedures

Situations can arise in which a student disagrees strongly with a decision made about him/her, or where he/she feels wrongly treated by someone within the University. Several courses of action are open. Advice or assistance may be asked of the student's Advisor, the Committee on Graduate Education, the DGS, or the Department Chairman. Alternatively, if the matter is one that should not be raised within the Department, other University agencies can help. The Dean of the Graduate School (112 HGS, 203-432-2733) is one source of help. Another is the Deputy Provost (137 HGS, 203-432-4446), who is especially concerned with problems relating to equal rights for minorities and for women.

Within the School of Medicine, the latter concerns are also specifically addressed by the Associate Dean, Ombudsperson and Director of the Office for Women in Medicine (L-202 SHM, 202-737-4100).

For more information, please see the *Graduate School Bulletin, Programs and Policies* or go to <http://www.yale.edu/graduateschool/policies/grievances.html>

K. Yale Health Plan

The Yale Health Plan is a prepaid comprehensive health care Program located at the University Health Services Center, 55 Lock Street. All Yale graduate students enrolled at least half-time are automatically members of the YHP and are eligible for ambulatory care services and use of the infirmary at no additional charge.

Yale requires that students have hospitalization coverage as well. Students who do not have hospitalization from another source must purchase Yale Health Plan hospitalization coverage. For the current fiscal year, this coverage costs \$1,522 which is included as part of the regular financial aid.

For a separate monthly fee, students may purchase a supplemental Major Medical policy to extend the basic benefits. Major Medical coverage must be renewed each year.

Students may enroll their spouses and dependents under age 19 by filing an application with the YHP. A fee is applied through the Bursar's Office. Only those spouses and dependents specifically enrolled are eligible to receive YHP benefits

and service.

Members of the Yale Health Plan use the University Health Services for both routine and emergency outpatient care. The YHP encourages its members to select a personal physician from its full-time primary care medical staff. Appointments are scheduled weekdays between 8:30 am and 5 pm. Emergency care is available 24 hours a day at 55 Lock Street on a walk-in basis (203-432-0123).

In addition to primary care and emergency care, a full range of specialty services are available, including Allergy, Athletic Medicine, Cardiology, Dermatology, Endocrinology, EN&T, Gastroenterology, General Surgery, Hematology/Oncology, Internal Medicine, Mental Health and Counseling, Neurology, Obstetrics and Gynecology, Ophthalmology/Optomety, Orthopedics, Optometry, Radiology and Urology.

For students entering Yale University, membership begins on the day of registration. Prior to registration, a complete medical examination form and health report must be submitted to the YHP. If these forms are not completed, the service will be provided and a \$25 charge will be billed.

Further information about the Yale Health Plan may be obtained from Health Plan Member Services (information), 55 Lock Street (203-432-0246) or at <http://www.yale.edu/uhs/>.

L. Dining Facilities

Several University dining facilities (hours of operation can be found at: <http://www.yale.edu/dining/locations/hours.html>) are maintained for the convenience of students, faculty, and staff. In the Medical School area, these include:

- 1) Marigolds, (203-785-4685) located in the Edward S. Harkness Dormitory and Apartments (367 Cedar Street, adjacent to SHM). Marigolds is a contemporary eatery, which offers traditional as well as upscale cuisine. It is open 7:30 AM to 7:00 PM on Monday through Friday.
- 2) The East Pavilion Cafeteria at Yale-New Haven Hospital is open for breakfast, lunch, and dinner seven days a week. A valid Yale I.D. enables you to receive a "staff discount" at the cashiers. Various Cafés at Yale-New Haven Hospital are open Monday through Friday usually until 4 PM.

M. Shuttle Buses

The Yale Shuttle Bus is a cross-campus service operated by the University for those who need to move between the Medical School, the Central Campus, and the Science Area. The Shuttle is free with a University I.D. card.

The Daytime Shuttle operates from 7:20 AM to 6:00 PM Monday through Friday. It does not run on weekends or employee holidays, with the exception of Good Friday. The bus loops around the campus along four different set routes.

Schedules and routes are subject to change and are posted on the web at <http://www.yale.edu/parkingandtransit/shuttle/>

N. Night-Time Transportation

The Yale University Parking Service operates free evening transportation service. The Nighttime Shuttle runs 7 nights a week, 359 days a year (every night of the year except Thanksgiving, Christmas Eve, Christmas night, New Year's Eve, New

Year's night, and July 4th). Between 6 PM and 7:30 AM 359 days a year, any person with a valid Yale ID card can obtain free transportation on the Yale Nighttime Shuttle from Yale buildings to residences, from residences to Yale buildings within the service boundaries. This is NOT a residence to residence service.

There are two ways to use the Nighttime Shuttle.

- 1) Go to one of the stops listed on the schedule and wait for the next Shuttle. A bus passes each stop every 15 minutes.
- 2) If you cannot safely go to one of the listed stops, call 203-432-6330. The dispatcher will radio one of the buses to go off route and pick you up.

If you require an escort to the nearest pick-up point, the Escort Service is available 24 hours/day, 7 days/week – call 203-432-9255. Be prepared to show your Yale I.D. For more information, check their website at http://www.yale.edu/minibus/gen_info.htm

In addition, the University Police provide transportation 24 hours a day for medical emergencies to the University Health Services.

O. *Parking*

Having a car on campus isn't necessary! Yale now offers over 30 Zipcars located at a dozen sites around the campus. Zipcar is a car sharing program that lets you use a car by the hour or day <http://to.yale.edu/zipcar> . Why pay to store your car on campus, when you can have a car - that comes with parking and gas costs included - whenever you want it ?

However, parking permits are available for a fee to Yale students. For submitting an application online for a permit go to the Parking Services website at <http://www.yale.edu/transportationoptions/parking/parking-student.html>

Available parking space is limited. All assignments are made on a first-come, first served basis. Contact the YSM Parking/Transit office 203-785-6456 for details. Payment for parking is on a full semester basis only.

P. *Security*

All members of the Yale community are alerted to the fact that Yale is not immune to crime, property loss, or even personal injury. Individuals are urged to walk in groups, or request to be escorted by the Student Patrol Service, which has been set up by the University Police to provide for safety on the streets and in the parking lots. These patrolmen are easily identified by their orange vests and police radios. Night-time transportation is available for students working late in the evenings (see above).

Q. *The I.D. Card*

During initial registration, incoming students receive an I.D. card with their registration packets. These ID cards must be worn visibly at all times for identification purposes. Other students who need I.D. cards (in the case of lost or stolen cards) should report to the Medical School I.D. Center, 333 Cedar Street, SHM CE-1A (203-785-4286) <http://www.yale.edu/sfas/idcard/index.html#features>.

R. *I.D. Card Access and Keys*

Entrances to Medical School facilities are controlled by card readers. The doors are opened by swiping an authorized I.D. card through the card readers. The proper access authorizations are programmed at the time the I.D. card is issued. The Department of Cellular and Molecular Physiology provides I.D. card access to

the tea room in the Department. Students on lab rotations or advanced students may require access to particular laboratories or core facilities. The Department Registrar and Business Office can arrange for card reader authorization or keys to be issued.

S. Mail

Mail is distributed to mail boxes in the business office (SHM B147). Each student has a named mail slot.

T. Telephones

Telephone communication at Yale presently operates on two separate exchanges: one for the Medical School-Hospital area and one for the rest of the campus. Calls within the Medical School-Hospital area and the rest of the campus are made by dialing the last 5 digits. Calls made outside the campus require 9, then the 10-digit number including the local area code. You should consult the campus directory for dialing long distance.

U. Recreational Opportunities

A wide variety of recreational opportunities are available at Yale and in the New Haven area.

- 1) *University Athletic Facilities* are available for standard fees. They include:
 - a) Payne Whitney Gymnasium (70 Tower Parkway; 203-432-1444) for sports, dance, exercise, and swimming.
 - b) Ingalls Skating Rink (73 Sachem Street; 203-432-4771) for ice-skating sessions between mid-October and April.
 - c) The Yale Golf Course (Ray Road; 203-432-0895)
 - d) Cullman Tennis Courts (for indoor tennis, late October through late April) and outdoor courts (Derby Avenue; 203-432-0693).
 - e) The McNay Family Sailing Center (Short Beach, Branford; 203-488-9330 – formerly known as the Yale Sailing Center), which has 420's for use and offers sailing lessons.
- 2) *At the Medical School*, the Department has softball and basketball teams that participate in a very informal University league.
- 3) *Musical Opportunities* include:
 - a) The Yale Symphony orchestra, made up of students from all levels within the University, and the Philharmonic Orchestra, made up of School of Music students. Most concerts are at Woolsey Hall (College & Grove St.). Tickets are \$2 for Yale students (call 203-562-5666 for tickets)
 - b) A variety of singing groups (for information, call the Music Department at 203-432-2985).
 - c) Yale School of Music sponsors frequent recitals, which are listed in the Weekly Bulletin & Calendar. Admission is often free.
 - d) New Haven Symphony and the Woolsey Hall Concert Series. Tickets are available singly or in series at the New Haven Symphony – Administrative Offices, 70 Audubon 3rd floor (203-865-0831)

- e) Music on the Green, a free summer concert series on the New Haven Green is presented by Smilow Cancer Center at Yale-New Haven Hospital. Concerts begin at 6:00 pm or 7:00pm. Admission is free.
- 4) *Theatrical Productions* are presented during the year by
- a) The Yale Repertory Theatre
Chapel & York Street, 203-432-1234
 - b) The Long Wharf Theatre Company
222 Sergeant Drive, 203-787-4282
 - c) The Yale Cabaret
217 Park Street, 203-432-1566
 - d) The Shubert Theater Box Office
247 College Street, 203-562-5666
- 5) *University Museums*, worth many visits:
- a) Peabody Museum of Natural History
Sachem Street & Whitney Avenue 203-432-5050
<http://www.peabody.yale.edu/>
Free Admission with Yale I.D.
Hours: Mon-Sat 10-5, Sun 12-5.
This museum contains extensive research collections in geology, anthropology, and ornithology. Displays include minerals; birds of Connecticut; fossil plants, fish, birds, reptiles, and mammals; and especially the great dinosaurs. For students coming to Yale from great distances, this museum provides an excellent study of the natural history of New England.
 - b) Yale University Art Gallery
1111 Chapel Street 203-432-0600
<http://artgallery.yale.edu/>
Free admission
Hours: Tue-Sat 10-5, Thurs 10-8, Sun 1-6.
The Gallery includes wonderful collections of 17th, 18th, and 19th century paintings and furnishings. It also offers free Sunday concerts, films, and lectures.
 - c) Yale Center for British Art
1080 Chapel Street 203-432-2800
<http://ycba.yale.edu/index.asp>
Free admission
Hours: Tues-Sat 12-5, Sun 12-5.
This center contains a collection of British paintings, drawings, prints, rare books, and sculpture assembled over the past 35 years by Paul Mellon. It also offers a gift shop and free Saturday films.

Schedule of Academic Dates and Deadlines 2013–2014

Fall Term, 2013

Monday, August 19	New student orientation week begins.
Thursday, August 22	Oral Proficiency Assessment for international students in Ph.D. programs.
Thursday, August 22	Matriculation ceremony.
Friday, August 23	Fall-term On Line Course Selection (OCS) begins.
Monday, August 26	Fall <i>Teaching at Yale</i> Day: orientation for all new Teaching Fellows. Orientation in departments for all new students begins.
Wednesday, August 28	Fall-term classes begin, 8.20 a.m.
Friday, August 30	Friday classes do not meet, Monday classes meet instead
Monday, September 2	Labor Day. Administrative offices closed. Classes do not meet.
Friday, September 6	Final day to apply for a fall-term <i>personal leave of absence</i> . The entire fall-term tuition charge or continuous registration fee (CRF) will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a <i>leave of absence</i> effective on or before this date.
Wednesday, September 11	Fall-term On Line Course Selection (OCS) ends. Final day for registration. <i>A fee of \$25 is assessed for course schedules accepted after this date.</i>
Monday, September 16	Deadline for students to notify departments of the intention to submit a dissertation for conferral of the Ph.D. in December.
Friday, September 20	One-half of the fall-term full-tuition charge will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a <i>medical leave of absence</i> effective on or before this date (<i>The CRF is not prorated.</i>)
Tuesday, October 1	Final date for the faculty to submit grades to replace Temporary Incompletes (TI's) awarded during the previous academic year. Due date for dissertations to be considered by the Degree Committees for award of the Ph.D. in December. Final day to file petitions for degrees to be awarded in December.
Friday, October 18	Midterm.

One-quarter of the fall-term full-tuition charge will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a *medical leave of absence* effective on or before this date. *The CRF is not prorated.*

Teaching appointments will not appear on the transcripts of students who withdraw from the assignment on or before this date.

Monday, October 28

Final day to change enrollment in a fall-term course from Credit to Audit or from Audit to Credit.

Final day to withdraw from a fall-term course.

Friday, November 1

Readers' Reports are due for dissertations to be considered by the Degree Committees for award of the Ph.D. in December.

Thursday, November 7

Departmental recommendations are due for candidates for December degrees.

Final day to withdraw a degree petition for degrees to be awarded in December.

Thursday, November 14 Oral Proficiency Assessment for international students in all GSAS degree programs.

Friday, November 22

November recess begins, 5:20 p.m.

Monday, December 2

Classes resume, 8:20 a.m.

Final day to submit petitions for extended registration and Dissertation Completion status.

Wednesday, December 11

Classes end, 5:20 p.m.

Monday, December 23

Winter recess begins.

Spring Term, 2014

Friday, January 3	Final grades for fall-term courses due.
Thursday, January 9	Spring-term Online Course Selection (OCS) begins.
Monday, January 13	Registration and spring ID validation begins. Spring-term classes begin, 8:20 a.m. Spring <i>Teaching at Yale</i> Day: orientation for all new Teaching Fellows
Friday, January 17	Friday classes do not meet. Monday classes meet instead.
Monday, January 20	Martin Luther King Jr. Day. Administrative offices closed. Classes do not meet.
Wednesday, January 22	Final day to apply for a spring-term <i>personal leave of absence</i> . The entire spring-term tuition charge or CRF will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a <i>leave of absence</i> effective on or before this date
Friday, January 24	Registration and spring ID validation end. Spring-term On Line Course Selection (OCS) ends. Final day for registration. <i>A fee of \$25 is assessed for forms accepted after this date.</i>
Thursday, February 6	One-half of the spring-term full-tuition charges will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a <i>medical leave of absence</i> effective on or before this date. <i>The CRF is not prorated.</i>
Monday, March 3	Deadline for students to notify departments of the intention to submit a dissertation for conferral of the Ph.D. in May.
Friday, March 7	Midterm. One-quarter of the spring-term full-tuition charge will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a <i>medical leave of absence</i> effective on or before this date. <i>The CRF is not prorated.</i> Deadline for submitting spring-term teaching assignments to the Teaching Fellow Program Office. Teaching appointments will not appear on the transcripts of students who withdraw from the assignment on or before this date.
Friday, March 14	Due date for dissertations to be considered by the Degree Committees for award of the Ph.D. in May. Final day to file petitions for degrees to be awarded in May.

Friday, April 4	Final day to change enrollment in a spring-term course from Credit to Audit or from Audit to Credit. Final day to withdraw from a spring-term course.
Monday, April 14	Readers' Reports are due for dissertations to be considered by the Degree Committees for award of the Ph.D. in May.
Monday, April 21	Final day to withdraw a degree petition for degrees to be awarded in May.
Thursday, April 24	Departmental recommendations are due for candidates for May degrees.
Wednesday, April 30	Classes end, 5:20 p.m.
Thursday, May 1	Final day to submit Dissertation Progress Reports. Final day to submit petitions for extended registration and Dissertation Completion status for subsequent academic year. Final examinations begin.
Tuesday, May 6	Final examinations end.
Friday, May 9	Final grades for spring-term courses are due for candidates for terminal M.A. and M.S. degrees to be awarded at Commencement.
Sunday, May 18	Graduate School Convocation.
Monday, May 19	University Commencement.
Monday, June 2	Final grades for spring-term courses and full-year courses are due.