

# The University of Chicago



## COMMITTEE ON CANCER BIOLOGY

Student Handbook  
2018-2019

*Revised: September 2018*

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# ACADEMIC CALENDAR

2018-2019

## AUTUMN 2018

<i>Date</i>	<i>Event/Deadline</i>
Sep. 2-9	Quantitative Approaches Bootcamp (at MBL)
Sep. 24-28	Orientation
Sep. 24	Registration
Oct. 1	Quarter Begins
Nov. 22-23	Thanksgiving
Dec. 15	Quarter Ends

## WINTER 2019

<i>Date</i>	<i>Event/Deadline</i>
Jan. 7	Quarter Begins
Jan. 21	Martin Luther King, Jr. Day
Mar. 23	Quarter Ends

## SPRING 2019

<i>Date</i>	<i>Event/Deadline</i>
Apr. 1	Quarter Begins
May 27	Memorial Day
Jun. 15	Quarter Ends
Jun. 15	Convocation

## SUMMER 2019

<i>Date</i>	<i>Event/Deadline</i>
Jun. 24	Quarter Begins
Jul. 4	Independence Day
Aug. 31	Quarter Ends

(Calendar subject to change)

UChicago Calendar: [uchicago.edu/academics/calendar](http://uchicago.edu/academics/calendar)

## CCB EVENTS CALENDAR 2018-2019

### AUTUMN QUARTER

OCTOBER		
Date	Time	Event
1		Fall Quarter Starts
1	12PM	CCB SRP: John Cao/Lindsey Ludwig
3	11AM	NCI Director visit - meets with trainees
3	4PM	UCCCC seminar - Ned Sharpless (NCI Director)
5	12PM	UCCCC seminar - Benita Katzenellenbogen
10	12PM	CCB JC: Kyle Delaney/Matthew Tredowski
15	All day	CHICAGO CANCER Retreat - Gleacher Center
19	12PM	UCCCC seminar - Pepper Schedin
26	12PM	CCB Seminar - Charles Roberts
29	12PM	CCB SRP: Cynthia Li/Maya Springer
28-30		Annual CABTRAC meeting

DECEMBER		
Date	Time	Event
1		Grad student application deadline
3	12PM	CCB SRP: Logan Poole /Stephen Arnowitz
8		F31 fellowship deadline
10	12PM	CCB SRP: Jessica Fessler/Nesli Dolcen
12	12PM	CCB JC: Yue Liu/Katrina Maxcy
15		Fall Quarter ends

FEBRUARY		
Date	Time	Event
4	12PM	CCB SRP: Robert Gruener/Jean Lee
5		NIH RO1 deadline
13	12PM	CCB JC: Sravya Tumuluru/Manisha Krishnan
15-16		Annual CCB grad student recruitment w/e-2
18	12PM	CCB SRP: Julian Lutze/Katrina Maxcy
25		DEADLINE Nominations for CCB seminar speakers for 2019-2020 - email Laura

### SPRING QUARTER

APRIL		
Date	Time	Event
1		Spring quarter starts
1, 2, 3		Annual AACR convention Atlanta, GA
5	12PM	CCB Seminar - Sean Morrison
8		F31 fellowship deadline
8	12PM	CCB SRP: Yue Liu/Peter Yang
10	12PM	CCB JC: Rosy Liao/Christopher Lee
12	12PM	UCCCC seminar - John Weroha
15	12PM	CCB SRP: Matt Trendowski/ Manisha Krishnan
26	12PM	CCB seminar - Thales Papagiannakopoulos

JUNE		
Date	Time	Event
3	12PM	CCB SRP: Chris Lee
5		NIH RO1 deadline
6	12PM	CCB JC: Maya Zafir/Alexandra Smith
14	12PM	CCB seminar - Karen Knudsen
15		Spring quarter ends

NOVEMBER		
Date	Time	Event
2	12PM	CCB Seminar - Myles Brown
5		NIH RO1 revision deadline
5	12PM	CCB SRP CABTRAC Presentation
14	12PM	CCB JC: Nesli Dolcen/Eric Bueter
14-17		Annual ABRCMS meeting
16	12PM	UCCCC seminar - Mat Milowsky
19	12PM	CCB SRP: Kyle Delaney/ Sriram Sundaravel
22		THANKSGIVING

### WINTER QUARTER

JANUARY		
Date	Time	Event
7		Winter quarter starts
7	12PM	CCB SRP: Calvin Van Opstall/Mat Perez-Neut
9	12PM	CCB JC: Peter Yang/Jillian Rosenberg
18	12PM	UCCCC seminar - Howard Crawford
25-26		Annual CCB grad student recruitment w/e-1
28	12PM	CCB SRP: Chang Cui/Lari De Wet

MARCH		
Date	Time	Event
1	12PM	CCB Seminar - Christine Curtis
4	12PM	CCB SRP: Eric Bueter/Jill Rosenberg
5		NIH RO1 revision deadline
8	12PM	UCCCC seminar - Xiao-Fan Wang
11		Goldblatt Symposium
13	12PM	CCB JC: Cynthia Li/Rosemary Huggins
18	12PM	CCB SRP: Jimmy Lee/ Sravya Tumuluru
23		Winter quarter ends
30-31		Annual AACR convention Atlanta, GA

MAY		
Date	Time	Event
3	12PM	CCB seminar - Jing Chen
6	12PM	CCB SRP: Wenchao Liu /Alexandra Smith
8	12PM	CCB JC: Jean Lee/Robert Gruener
13	All day	T32 symposium
20	12PM	CCB SRP: Rosy Liao / Rosie Huggins
24	Noon	Joint CCB/CMMN seminar - Costas Lyssiottis
28		Goldblatt traineeship application DEADLINE
31	12PM	CCB seminar - Maureen Murphy
31		T32 traineeship application DEADLINE-

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## **PROGRAM OF STUDY**

The Program is designed for students who wish to pursue careers in cancer biology. Our goal is to give students broad training in basic science disciplines combined with specialized training in a cancer biology curriculum. Particular specialization within the Program will depend on the student's interests.

**Orientation.** Orientation begins with the week-long "Introduction to Quantitative Biology" held at the Marine Biology Labs in Woods Hole, MA in early September before Year 1 officially starts. This bootcamp serves to introduce students to computational approaches relevant to all biological research as well as serving as a means to get know their fellow students and become familiar with research at Woods Hole. The official Orientation week is the week before the Quarter starts and is driven by numerous social events and information sessions that are both general to the BSD and focused on programmatic affiliations. The quarter starts the last week of September.

**Year 1.** The first year will be spent in coursework, independent reading, and exploratory research. The number of courses constituting a full schedule for the first year will vary, but will typically include two to three courses each quarter, in addition to **Cancer Biology 5: Introduction to Experimental Cancer Biology (CABI 39000)**. *Attendance is mandatory at each course.* Students will also complete at least two research rotations.

Students are required to complete at least two research rotations in different laboratories before beginning their dissertation research. These rotations will take place during the first academic year and during the Summer Quarter (either before the first year or between the first and second years). A letter grade will be assigned, based on student performance, and each rotation will count as 0.5 course credits.

All first year graduate students must also take the divisionally required course "**Scientific Integrity and the Responsible Conduct of Research**" in the spring quarter. It is offered on Tuesday and Thursday evenings from 5:30-7:20pm in the BSLC. This course includes formal seminars by faculty in areas pertaining to proper handling and reporting of scientific data and ethical considerations in research. Different aspects of scientific ethics are covered each week, led by 1-2 faculty mentors. The format varies, including faculty presentations followed by group discussions, faculty presentations with question and answer periods within the presentation time, and case study discussion. Students are required to complete two written assignments based on video vignettes from AAAS and written case studies, and to make small-group presentations to the class.

All first year Ph.D. students are required to take an oral preliminary exam before the start of the second year (usually held several weeks after the end of Spring quarter of first year). The exam includes critical analysis in oral format (at the chalk board) of a recent peer-reviewed publication to an examining committee of one to two research articles. The exam committee probes the student's understanding of the published work and related areas through probing questions on the work and possible future directions in the field thereby assessing the ability to the student to think on their feet in a critical manner.

Students are strongly encouraged to take advantage of the numerous seminars offered on campus throughout the year and **are expected to attend ALL UCCCC and CCB seminars on Fridays at noon**. Absence from CCB seminars must be justified in advance with the Program Chair (Dr. Macleod). Students are required to take CABI 5: *Critical Analysis of Experimental Cancer Biology* course every quarter during their first and second years. The course meets once per week to discuss research papers associated with the upcoming CCB Seminar speaker. Students also meet with the speaker after his/her talk. In addition, the Cluster programs sponsor an “All Stars Course” which meets every Tuesday in Autumn and Winter Quarters from 12:00 to 1:00pm which features faculty research. First year students are required to attend and this is an excellent opportunity to learn about ongoing research in faculty labs.

The CCB co-sponsors an annual Biomedical Sciences Cluster weekend retreat that is typically held off-campus. The retreat features talks from current students, post-doctoral fellows, new faculty members, other invited speakers, and includes a poster session. The Committee also sponsors a journal club that meets the third Wednesday of each month, and a student/postdoc research presentation meeting in which students and postdocs present their latest research to their peers (twice per month on Monday). CCB students are required to attend the annual retreat, journal club and the student research presentations. Again, absences from these programmatic activities need to be justified in advance with the Program Chair (Dr. Macleod).

The BSD Graduate Student Seminar series is an informal gathering of the Divisional graduate students every Friday at 4:00 PM in CLSC 101. In addition, the BSD offers numerous seminar series, sponsored by other departments and committees, many of which may be of interest to CCB Students.

**Year 2.** Although coursework continues during the second year, students spend most of their time preparing for their thesis proposals and developing a research project. Students are required to continue taking **Cancer Biology 5: Critical Analysis of Experimental Cancer Biology (CABI 39000)** each quarter of their second year. By early in the second year, students will have selected a research advisor and begun their thesis research. This is in time to participate in **Cancer Biology 4: Hypothesis Design and Grant Writing Skills** in Fall quarter of second year and upon which students will write up a grant proposal around their own research project. Towards the end of year 2, they will establish a dissertation committee and present their thesis proposals, based on their research project. Ideally, this is completed by end of Spring quarter of second year and no later than end of Fall quarter of third year. Students are also required to complete an individual development plan online ([www.myidp.sciencecareers.org](http://www.myidp.sciencecareers.org)) at this stage that outlines their timeline for successful completion of their doctorate thesis and also summarizes other activities planned to promote their career (such as publications, attendance of conferences, contact with future post-doctoral mentors/employers, etc.). The thesis proposal defense is also a key part of the qualifying exam (along with the first year prelim exam) and is required for entry into candidacy for a doctorate degree. Students should note that successful completion of this qualifying exam is required by their 9<sup>th</sup> quarter in graduate school (and ideally sooner) in order to be entered into candidacy for the degree of Ph.D. Failure to complete the qualifying exam by this time will result in inability to register as a student at UChicago. Please refer to the Divisional Policy

on PhD requirements appended to this handbook. Following the presentation and acceptance of their proposals, students will begin working full-time on their thesis research.

**Year 3.** The key objective in year 3 is to make substantial progress in obtaining data in line with the thesis research proposal. Students should also be considering preparation of their first research publication and where possible fellowship applications, such as F31 applications. Third year CCB students are also expected to attend the AACR annual meeting as part of their training and exposure to broad based, cancer-focused scientific meetings. Whenever possible, student participants are strongly encouraged to submit abstracts for poster or oral presentations at the AACR meeting.

**Advanced Years.** Students continue their thesis research and attend CCB seminars, journal clubs and, if applicable, advanced courses that enhance their training. Each student will hold a thesis committee meeting every 6-12 months at which they will present a written and oral progress report. They will also present an update to their individual development plan.

**MyChoice.** Another new opportunity open to all CCB students is the MyChoice program that aims to expose, educate and provide experiences to our trainees about career options that leverage their strong biomedical research training, including employment paths centered on business, education, innovation, research, or policy located within government, industry, universities and other institutions of learning, or the public sector. CCB students can participate in these initiatives at multiple levels and frequently use the opportunities in advanced years to explore career opportunities beyond academic science as well as to improve key skills relevant to scientific endeavor, such as improved communication, team management, goal setting and CV preparation.

**Thesis defense.** Students are expected to defend their thesis before the end of their fifth year in graduate school. To promote a timely defense, all students must present a plan at the end of their fourth year in graduate school that lays out a timeline for publication of thesis research and writing up of their Ph.D. thesis. This plan must be approved by the student's PI and thesis committee. At least one first author peer-reviewed publication is **required** in order to successfully graduate with a PhD from the UChicago program in Cancer Biology (this paper must be **in press** prior to thesis defense). Publication of thesis research work is a requirement unless there are extenuating circumstances (such as personal emergencies or other mitigating circumstances) that must be approved in advance by the program chair (Dr. Macleod); such exceptions are rare. When this occurs, written requests to the program chair must be accompanied by a detailed plan from the student and their PI as to when the work will be published. Before a defense can go ahead, each student must hold a penultimate thesis committee meeting (usually 3 months before the defense) during which the student provides copies of manuscripts in press or published and a written outline of the proposed thesis (usually in the form of draft Contents pages). If all criteria are met, the committee can then authorize the student to proceed to defense involving writing up of a written thesis. A final draft of the thesis must be provided to the committee at least 2 weeks prior to defense or no less than one week ahead of the defense if prior approval of the committee has been obtained. Finally, to complete Ph.D. requirements and graduate, students must present

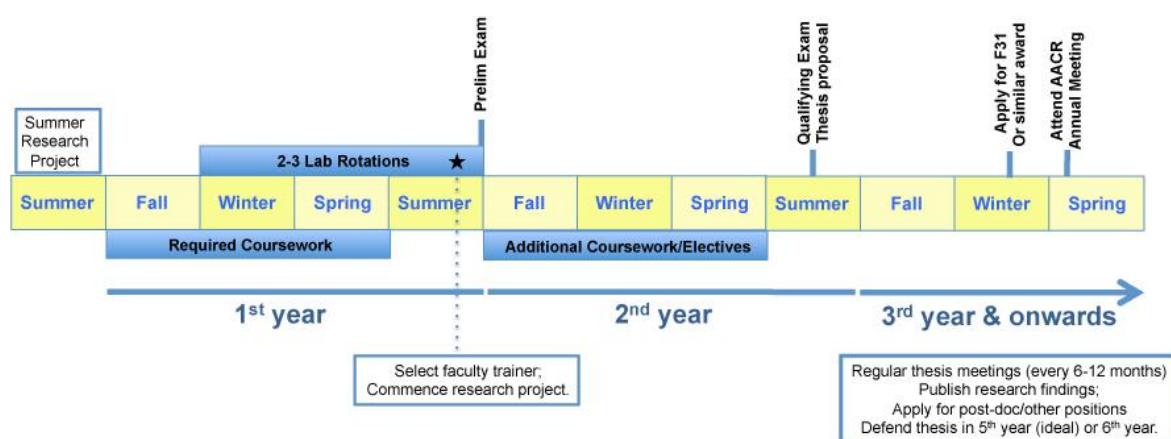
their work at a public seminar and then defend it before a faculty examining committee (usually their thesis committee). If the quality of the research and the written thesis is meritorious, the committee will then vote on whether the student has successfully defended their thesis or not.

**Senior Ethics Requirements for Defense.** In accordance with recent changes in NIH policy, which require trainees to receive ethics training at least once every four years, the Biomedical Sciences Cluster has organized a new course “**Continuing Ethics Training for Senior Pre-doctoral students**” that is mandatory for all pre-doctoral students prior to their thesis defense. This advanced Ethics course complements the divisional first year course (BSDG 55000) and does not cover the same material. Each class consists of a discussion on the topic at hand that is accompanied by assigned reading and appropriate case studies. Absence at any one class is made up by preparation of a written paper.

**Evaluation.** Throughout their term as graduate students, we expect students to have frequent conversations with the Chair of the Committee, professors in their courses, their research advisor, and (in later years) members of their doctoral committees. In this way, students can obtain frequent appraisals of their progress and constructive advice.

Formal evaluation of student progress is ongoing and extensive. In the first and second years, evaluations are based on student performance in courses, laboratory rotations, the Preliminary Examination, and the thesis proposal. Subsequently, the thesis committee reports to the Chair and the CCB Curriculum Committee on student research progress after each meeting, which takes place every 6-12 months, or more often if necessary. The Curriculum Committee or Chair will inform students of any deficiencies in writing and suggest remedies.

**Figure: Cancer Biology Graduate Student Training Schedule.**



## **CORE CURRICULUM**

**Cancer Biology Fundamentals (CABI 30800).** This course introduces students to key aspects of cancer biology, including fundamental molecular mechanisms (includes tumor suppressor and oncogene function, cell cycle checkpoint control, cytokinesis defects and aneuploidy, DNA damage sensing & repair, cell death mechanisms, cellular senescence) underpinning the initiation and progression of disease. These lectures are taught



alongside an introduction to clinical and translational perspectives, on the topics of epidemiology, pathology, diagnosis and staging, and the basis for various therapeutic strategies with an emphasis on four different organ sites to illustrate key points. The course concludes with an examination of how to identify important research questions in cancer biology and the importance of innovation in research. *Course Director - Lingen.* Autumn.

**Translational Approaches in Cancer Biology (CABI 32000).** This is a lab/clinic-based course in which students complete training objectives in multiple modules of translational/applied cancer research (clinical, animal models, targeted therapy, intellectual property, bioinformatics, nanotechnology and population science). The emphasis of the course is hands-on experience and a high degree of independence is expected. Trainees select a topic on which to write up a final discussion paper and each student will deliver a presentation on their topic that incorporates elements of the different translational elements discussed during the quarter. *Course Director -MacLeod.* Spring.

**Hypothesis Design and Grant Writing Skills (CABI 31600).** This is a course based on developing and testing hypotheses that will provide an overview and real-world experience of the grant-writing process (F31 format), as well as responding to criticisms and presenting one's grant in a precise but concise manner. As it is a course centered around in-class discussion, it is dependent on the consistent creativity and participation of students in order to provide and receive useful feedback to and from their colleagues. The grant will formulate hypotheses around the student's own research project and the completed grant should provide a strong basis for future F31 or other fellowship applications. Review and input from each student's PI is encouraged. Course Directors – Xiaoyang Wu, Lev Becker. Taken in Autumn quarter of 2nd year (once students have joined a research lab).

**Introduction to Experimental Cancer Biology (CABI 39000).** This is a primary literature-based course that tracks our outstanding CCB Seminar Series and also incorporates seminars of interest from other Divisional programs. Typically, students meet to discuss research papers published by the following week's seminar speaker, attend the seminar, and then meet with the speaker afterward. The goal of the course is to broaden the student's exposure to current research and encourage discussion of scientific ideas among peers, as well introduce students to some of the major figures in cancer research with whom they may pursue future post-doctoral opportunities. All students start with an "A" grade but lose grade points if class performance or attendance is inadequate. Students are required to take this course for six quarters during years 1-2. *Course Directors - LaBelle, McNerney, Spiotto.* Autumn, Winter, and Spring.

**BASIC SCIENCE CORE CURRICULUM** Cancer Biology students are required to take at least **four** basic science courses, each from a different area of specialization (*Biochemistry & Molecular Biology, Genetics & Systems Analyses, Cell Biology, Quantitative Biology & Statistics*). The choice of course depends frequently on a particular student's background with students being encouraged to take course that fills particular gaps in knowledge or experience.

## **Biochemistry & Molecular Biology**

**Protein Fundamentals (BCMB/HGEN/MGCB 30400).** The course covers the physical chemical phenomena that define protein structure and function. Topics include: the principles of protein folding, molecular motion and molecular recognition; protein evolution, design and engineering; enzyme catalysis; regulation of protein function and molecular machines; proteomics and systems biology. *Keenan*. Autumn.

**Structure and Function of Membrane Proteins (BCMB/MGCB 32300).** This course will be an in depth assessment of the structure and function of biological membranes. In addition to lectures, directed discussions of papers from the literature will be used. The main topics of the courses are: (1) Energetic and thermodynamic principles associated with membrane formation, stability and solute transport (2) membrane protein structure, (3) lipid-protein interactions, (4) bioenergetics and transmembrane transport mechanisms, and (5) specific examples of membrane protein systems and their function (channels, transporters, pumps, receptors). Emphasis will be placed on biophysical approaches in these areas. The primary literature will be the main source of reading. *Perozo*. Autumn.

**Molecular Immunology (IMMU 20266/BIOS25266).** Molecular Immunology examines the structural principles of immune recognition by antigen receptors of the innate and adaptive immune system, the discrimination between self and non self and the molecular fundamentals of cell stimulation and signaling. Primary literature is integrated with lectures on commonly used biochemical, structural and immunological techniques. *Erin Adams Spring 2017, 2019*.

**Molecular Biology 1 (MGCB/BCMB 31200).** Nucleic acid structure and DNA topology; methodology; nucleic-acid protein interactions; mechanisms and regulation of transcription, replication and genome stability and dynamics. *Rothman-Denes, Bishop*. Winter.

**Molecular Biology 2 (MGCB/BCMB/DVBI 31300).** The content of this course will cover the mechanisms and regulation of eukaryotic gene expression at the transcriptional and post-transcriptional levels. Our goal is to explore research frontiers and evolving methodologies. Rather than focusing on the elemental aspects of a topic, the lectures and discussions highlight the most significant recent developments, their implications and future directions. Enrollment requires the equivalent of an undergraduate molecular biology course or consent from the instructors. *Staley, Ruthenburg*. Spring.

## **Genetics & Systems Approaches**

**Human Genetics 1: Human Genetics (HGEN 47000).** This course covers classical and modern approaches to studying cytogenic, Mendelian, and complex diseases. Topics include chromosome biology, single gene and complex disease, non-Mendelian inheritance, cancer genetics, human population genetics, and genomics. The format includes lectures and student presentations. *Ober, Waggoner, Nobrega*. Autumn.

**Genetic Analysis of Model Organisms (BCMB/HGEN/MGCB 31400).** Fundamental principles of genetics discussed in the context of current approaches to mapping and functional characterization of genes. The relative strengths and weaknesses of leading model organisms are emphasized via problem-solving and critical reading of original literature. *Bishop, Moskowitz, Ferguson, Malamy.* Autumn.

**Genomics and Systems Biology (IMMU/HGEN 47300).** This lecture course explores the technologies that enable high-throughput collection of genomic-scale data, including sequencing, genotyping, gene expression profiling, assays of copy number variation, protein expression and protein-protein interaction. We also cover study design and statistical analysis of large data sets, as well as how data from different sources can be used to understand regulatory networks (i.e., systems). Statistical tools introduced include linear models, likelihood-based inference, supervised and unsupervised learning techniques, methods for assessing quality of data, hidden Markov models, and controlling for false discovery rates in large data sets. Readings are drawn from the primary literature. *Gilad.* Spring

### Cell Biology

**Cell Biology 1 (MGCB/BCMB/HGEN 31600).** Eukaryotic protein traffic and related topics, including molecular motors and cytoskeletal dynamics, organelle architecture and biogenesis, protein translocation and sorting, compartmentalization in the secretory pathway, endocytosis and exocytosis, and mechanisms and regulation of membrane fusion. *Turkewitz, Glick.* Autumn.

**Cell Biology 2 (MGCB/BCMB 31700).** This course covers the mechanisms with which cells execute fundamental behaviors. Topics include signal transduction, cell cycle progression, mitosis, checkpoints, cytoskeletal polymers and motors, cell motility, cytoskeletal diseases, and cell polarity. Each lecture will conclude with a dissection of primary literature with input from the students. Students will write and present a short research proposal, providing excellent preparation for preliminary exams. Cell Bio I 31600 is not a prerequisite. *Glutzer, Kovar.* Winter

**Stem Cells and Regeneration (DVBI 36200).** The course will focus on the basic biology of stem cells and regeneration, highlighting biomedically relevant findings that have the potential to translate to the clinic. We will cover embryonic and induced pluripotent stem cells, as well as adult stem cells from a variety of systems, both invertebrate and vertebrates. *Ferguson, Prince, Cunningham, De Jong, Wu.* Autumn

### Quantitative Biology & Statistics

**Biostatistical Methods (STAT 22700).** This course is designed to provide students with tools for analyzing categorical, count, and time-to-event data frequently encountered in medicine, public health, and related biological and social sciences. This course emphasizes application of the methodology rather than statistical theory (e.g., recognition of the appropriate methods; interpretation and presentation of results). Methods covered include contingency table analysis, Kaplan-Meier survival analysis, Cox proportional-hazards survival analysis, logistic regression, and Poisson regression. *Cao.* Winter

**Introduction to Scientific Computing for Biologists (ECEV 32000).** Computing is a challenge for scientists, especially for those not trained in the so-called “hard sciences”. By definition, as scientists we are trying to do something no one has attempted before. As such, no off-the-shelf software is typically available for the analysis we want to perform. Hence the need for at least rudimentary programming skills that are the focus of this course. Data is growing exponentially in size and quality. This data deluge requires better data organization and flow. Agencies and publishers are more and more often requiring scientists to deposit the data and the code for analysis prior to papers’ acceptance. Thus, the organization of code and data should be approached with the same effort we put in papers. Learning how to program efficiently, how to organize code and data, how to automate analysis and how to collaborate with others in these areas are the key goals of this course. *Allesina*. Winter

**Statistical Inference and Stochastic Models for Computational Biologists (HGEN 48600).** Covers key principles in probability and statistics that are used to model and understand biological data. There will be a strong emphasis on stochastic processes and inference in complex hierarchical statistical models. Topics will vary but the typical content would include: Likelihood-based and Bayesian inference, Poisson processes, Markov models, Hidden Markov models, Gaussian Processes, Brownian motion, Birth-death processes, the Coalescent, Graphical models, Markov processes on trees and graphs, Markov Chain Monte Carlo. Prereq: STAT 244 or equivalent and comfort with programming, or consent of instructor. *Novembre, Stephens* .Spring.

**Quantitative Analysis of Cellular Dynamics (DVBI 32000).** This course covers quantitative approaches to understanding biological organization and dynamics at molecular, sub-cellular and cellular levels. A key emphasis is on the use of simple mathematical models to gain insights into complex biological dynamics. We also will cover modern approaches to quantitative imaging and image analysis, and methods for comparing models to experimental data. A series of weekly computer labs will introduce students to scientific programming using Matlab and exercise basic concepts covered in the lectures. *Rust, Munro*. Spring

## **ELECTIVES**

**Directed Readings in Cancer Immunology (IMMU 30810)** This course will meet once per week for a two-hour session. The course is a literature-based course covering classical and contemporary topics in cancer immunology and immunotherapy. At each session, two students will each lead a discussion of one primary research paper. The course is expected to span the following topics:

1. Induction of tumor-specific immunity in mice and the immunosurveillance hypothesis
2. Tumor-associated and tumor-specific antigens
3. Cancer genomics and tumor heterogeneity
4. Tumor-associated antigen presenting cells
5. Tumor-associated regulatory T cells
6. CTLA-4: basic biology and therapeutic targeting

7. PD-1: basic biology and therapeutic targeting
8. Immunotherapy via adoptive T cell transfer and chimeric antigen receptor T cells
9. Novel therapies for the immunotherapy of cancer

The class can accommodate a maximum of 20 graduate students. Grading is pass-fail and is based on the level of participation in paper discussions and the quality of oral presentations. *Savage and Kline Spring 2018*

**Health Disparities in Breast Cancer** (BIOS25327, CCTS40400). Across the globe, breast cancer is the most common women's cancer. In the last two decades, there have been significant advances in breast cancer detection and treatment that have resulted in improved survival rates. Yet, not all populations have benefited equally from these improvements, and there continues to be a disproportionate burden of breast cancer felt by different populations. In the U.S., for example, white women have the highest incidence of breast cancer but African-American women have the highest breast cancer mortality overall. The socioeconomic, environmental, biological, and cultural factors that collectively contribute to these disparities are being identified with a growing emphasis on health disparities research efforts. In this 10-week discussion-based course students will meet twice weekly and cover major aspects of breast cancer disparities. The course is led by a team of faculty with expertise in the socioeconomic, biological, cultural and environmental approaches used to study disparities in breast cancer outcomes. The course objectives are: 1) to introduce students to how different communities and populations are impacted by breast cancer incidence, mortality and survival, 2) to analyze the complex factors that contribute to breast cancer disparities, including socioeconomic, cultural, lifestyle and biological factors, 3) to discuss the research and data analysis approaches employed in disparities research, 4) to assess strategies to reduce breast cancer disparities, and 5) to construct and discuss a research proposal in disparities research.

*Course Directors: Dolan, Conzen Winter*

## **REQUIREMENTS FOR THE PhD DEGREE IN CANCER BIOLOGY**

### **Formal Coursework**

A PhD candidate must fulfill formal coursework requirements, pass the preliminary examination, present an original thesis proposal (qualifying exam), and present and defend a satisfactory dissertation describing the results of his/her original research.

The academic program in cancer biology requires each student to complete at least ten graded courses (including six quarters of Critical Analysis of Experimental Cancer Biology – now a graded course) with at least 1 course being a computational, quantitative or biostatistics course, and two research rotations for a total of 11 course credits.

The goals of required coursework are to educate students with the most up-to-date fundamentals and recent advances in basic biological sciences as well as in Cancer Biology. To achieve these goals, a core curriculum made up of basic science and cancer biology courses is required, which can be tailored to suit individual interests.

To remain in good academic standing, students must maintain a B average in all graded, formal courses, and receive a B or better in all CCB core courses. Each quarter the Curriculum Committee reviews the transcripts of all CCB students. Any C grade must be balanced by an A by the end of the second year.

### **The Basic Science Core**

Students are required to take at least one course from each of the four following areas:

#### Biochemistry & Molecular Biology

BCMB 30400	Proteins 1: Protein Fundamentals
BCMB 32300	Proteins 2: Structure and Function of Membrane Proteins
IMMU 20266/BIOS25266	Molecular Immunology
MGCB 31200	Molecular Biology 1
MGCB 31300	Molecular Biology 2

#### Genetics & Systems Approaches

HGEN 47000	Human Genetics 1: Human Genetics
BCMB/HGEN/MGCB 31400	Genetic Analysis of Model Organisms
CABI 47300	Genomics and Systems Biology

#### Cell biology

MGCB 31600	Cell Biology 1
MGCB 31700	Cell Biology 2
DVBI 36200	Stem Cells and Regeneration

#### Quantitative biology & Statistics

STAT 22700	Biostatistical Methods
EVEC 32000	Introduction to Scientific Computing for Biologists
HGEN 48600	Statistical Inference and Stochastic Models for Computational Biologists
DVBI 32000	Quantitative Analysis of Cellular Dynamics

### **The Programmatic Core in Cancer Biology**

A student must take the following 4 Cancer Biology core courses:

#### Cancer Biology

CABI 30800	Cancer Biology Fundamentals
CABI 32000	Translational Approaches in Cancer Biology
CABI 31600	Hypothesis Design and Grant Writing Skills
CABI 39000	Critical Analysis of Experimental Cancer Biology

### **Electives**

CCB students can take 2 elective courses. Depending on past experience and evidence of successful performance in a particular area covered by core courses, students may elect in discussion with the CCB Chair and the Curriculum Committee to substitute specific Core Course for an elective course. Elective courses should be in an area or areas of specific

interest to the student and most frequently of direct relevance to their future research project. For example, students undertaking a graduate thesis project in cancer genomics are strongly encouraged to take key courses in functional genomics, human genetics and/or advanced statistics. Decisions about the elective courses selected by students are made in consultation with the Curriculum Committee. All course requirements should be completed by the end of the second year.

### **Laboratory Rotations**

Students must complete at least two research rotations in different laboratories. Each rotation will be graded. Once a student decides on a lab he/she would like to rotate in, the student must inform the Cluster Office and complete the Rotation Form. The form must then be returned to the Cluster Office. The student must also register for the appropriate course (BSDG 40100) in order to get credit for the rotation. At the end of the first year (i.e., four quarters of residence) students select a thesis research advisor.

### **Summary**

Basic Science Core:	4 credits
Programmatic Core:	3 credits
Critical Analysis of Experimental Cancer Biology:	1 credit
Electives:	2 credits
Research Rotations:	1 credit (0.5 each x2)

The goals and functions of research rotations are summarized below:

- A. Research rotations will consist of small research projects in different laboratories. The expectation of these rotations are that they will:
  - 1) provide an opportunity for each student to become familiar with the conceptual and technical features characteristic of potential thesis laboratories
  - 2) broaden the research base of the student
  - 3) allow faculty members to evaluate the research strengths of potential graduate students. As such, students will be expected to spend enough time in the laboratory to accomplish these goals.
  
- B. Scheduling of rotations will depend on the student's background, course work and experience. Students should complete at least two rotations over three quarters and the summer, or in some cases, the summer before the first academic year. Rotations are arranged by the student directly with the faculty mentor.
  
- C. At the end of these rotations:
  - 1) The student prepares a written rotation report to be given to the research mentor and the Cluster office.
  - 2) The faculty mentor will provide a written evaluation of the student and a grade for the student's performance in the rotation:

By the beginning of the second year of graduate school, students will be asked to choose a faculty advisor for their thesis research.

### **Teaching Assistantships**

Teaching skills are an important component of a successful academic career. The Divisional requirements mandate that each student complete two TAs. A student may TA in two undergraduate biology courses or two graduate level courses, or one undergrad and one graduate course. However, the two TAs must be in **different** classes. The Curriculum and Student Affairs Committee has selected courses that are expected to provide a good educational experience for the TA, and these are listed in the Teaching Opportunities publication issued by the BSD Dean of Students Office of Graduate Affairs annually. Responsibilities include leading discussion groups, writing problem sets, and running small group sessions. During Registration, the student **MUST** register for the TAship. At the end of each course, TAs are evaluated by the course director and the students. TAs will also evaluate themselves. All three evaluations must be returned to the BSD Office of Graduate Affairs (OGA) to receive credit for the TAship. Note: Students may not TA the same course twice in fulfillment of their Teaching Assistantship requirement.

### **Preliminary Examination - General Considerations**

All first year Ph.D. students will be required to take an oral preliminary exam at the end of first year (usually end of June/beginning of July). By this time it is expected that the student will have taken a minimum of six of the nine required courses (four general core courses; two programmatic core courses – Can Bio 1 and 3) prior to the exam. An overall grade average of "B" or better from all courses taken to date is required before taking the Preliminary Examination.

**Purpose:** The purpose of the Preliminary Examination is to help both the student and the Program determine whether he/she has received adequate training in core areas prior to progression to thesis research. The exam will take the form of a chalk board presentation of a recent peer-reviewed research publication. Concepts, experimental design and interpretation, and the ability to synthesize and integrate knowledge will be evaluated. The student must demonstrate that he/she is qualified to begin independent research by presenting and analyzing a current research article not in an area directly related to rotation or thesis research. The student should be able to define the scientific problem of significance, analyze and critique the experimental design, and discuss implications and future areas of research. The examining committee will ask questions related (and unrelated as need be) to the article and to test the students' base of knowledge and ability to think on their feet.

**1. Eligibility and Scheduling** - Students in good academic standing are eligible to take the preliminary examination after they have progressed adequately through their required and elective course work (usually six out of nine courses and their research rotations), and have met all other requirements of the program. For most students, the preliminary examination is scheduled in June/July of the summer quarter corresponding to the fourth quarter of full time residence in our graduate program. The Curriculum Committee and its chairperson are responsible for determining eligibility and for scheduling the examination.

**2. Format** - The preliminary examination consists of an article analysis and presentation. The student will receive a recently published primary peer-reviewed paper from any area of cancer research that is unrelated to their thesis or rotation research, and will have one week



to prepare a summary and analysis of the articles. Students will be allowed notecards for the presentation and may utilize a whiteboard to illustrate points. A faculty committee will administer the exam and will ask any questions they deem to be relevant to the scientific paper.

**4. Preparation and getting help** - Students should meet with program chair (Dr. Macleod) early in the 1-week article preparation period if they identify any serious problems. However, the student is not encouraged to meet with his/her prelim exam committee members and these committee members should not provide substantive assistance in the preparation of the articles.

Advance preparation by students (apart from reading and dissection the selected paper) should include being up to date and familiar with all class material from the last year as well as regular reading of new literature. Students are allowed to prepare or practice with other students but should not approach members of the exam committee for help. Students will also be allowed to bring up notes (preferably on index cards) to assist them in recalling specific experimental points from the papers (though over-reliance on notes will be reviewed negatively).

**5. Potential Outcomes of the Examination** - The exam will be scheduled by the Biomedical Sciences Cluster office and will take place one week after the receipt of the article. The exam will last up to two hours. The student will present the article, summarizing the background, questions being posed, experiments performed to test the hypothesis and the interpretation of the data presented. The student may at this stage introduce his/her criticism of the work. This part of the exam will come first and take approximately 20-30 minutes.

Subsequently, the student will present any additional critiques of the paper highlighting deficiencies and/or the significance of the work. Importantly for this part of the exam, the student will suggest future directions, to include experiments that could be designed to move the work to the next stage and/or to reach more significant or convincing conclusions, and why. This second part of the exam will take 30-40 minutes.

At any point of the exam, faculty will interrupt to ask questions aimed at testing the general knowledge and thought process of the student in presenting the paper. These questions may be directly linked to the paper or may equally be off-topic based on the direction of discussion, again designed to test the ability of the student to think on their feet about statements made or questions posed. The chair of each committee will ensure that discussions run on time and do not drift too far off course.

At the end of the examination, the prelim committee will ask the student to leave the room while they discuss how the article was presented, the student's responses to their questions, and their decision on the examination. The Committee's decision will be communicated to the student shortly after the examination when he or she is called back into the room. Five outcomes of the examination are possible: 1) A student can receive an unconditional pass; 2) A student can receive a conditional pass (oral exam acceptable) that requires additional coursework or other education/training experience (e.g. course TAsip) required by the Committee in one or more designated areas; 3) A student can receive an incomplete, which requires responses to all noted deficiencies within a set timeframe. The student may be

asked to meet again with the Examining Committee to defend his/her answers. Incompletes can only be converted to Unconditional Pass or Fail; 4) A student can fail but be given an opportunity to repeat the examination before the end of fall quarter, as determined by the committee; 5) A student can fail with the recommendation that he or she leave the program, if the exam is a retake of the original exam. **To continue in the CCB program, students must pass the preliminary examination by the end of their fifth quarter of full-time residence as a graduate student in the Committee on Cancer Biology.**

All recommendations from the prelim exam committees will be reviewed by the Curriculum Committee, which will then notify students in writing about the outcome. Additional requirements, if any, will be clearly stated. Students who fail the exam and wish to remain in the PhD program must re-take the exam by the end of the Autumn Quarter. During the interim, students will continue to receive stipend support. The examining committee for the retake will be selected by the Curriculum Committee and will contain at least one member of the first examining committee and at least one new member. Students who fail the Preliminary Examination, retake it, and fail again will meet with the Program Chair to discuss their possible eligibility for a terminal M.S. degree.

#### **Selection of a Thesis Advisor**

Students will select a thesis advisor during their second year of residence. In general, students will make this selection at the end of the first four quarters, when the research rotations have been completed. Students must notify the CCB Chair of their choice. If a student is undecided, another lab rotation may be suggested by the Committee Chair.

#### **Formation of a Dissertation Committee**

A thesis committee is formed by each student, in consultation with his or her mentor and the CCB Chair. The committee list and a short description of the proposed research project should be submitted to the Curriculum Committee before the end of March in the student's second year. The thesis committee will comprise at least four faculty members, three of whom must have appointments in the Committee on Cancer Biology. The chair of the thesis committee must be a member of the Committee on Cancer Biology and cannot be the research advisor. The chair is responsible for preparing a detailed report after each committee meeting, which provides important feedback to the student concerning his or her progress. Thesis committee members as well as the mentor have a collective responsibility to oversee student training and progress. Faculty members from outside institutions can be included, in addition to the minimum number of University faculty members on the committee.

Once a thesis committee is formed, its composition can be changed only by petitioning the Curriculum Committee and/or program Chair. Such changes may be necessitated by differing circumstances, including a shift in experimental focus, a change in lab/mentor, or unavailability of a faculty member.

Note: If the student has any pending incomplete grades for course work, the thesis proposal will be postponed until the course work has been completed and an average GPA of B or higher is maintained. **Students cannot be entered into candidacy until all divisional requirements have been met.**

### **The Thesis Proposal and First Committee Meeting (Qualifying Exam)**

The written proposal should be modeled after an NIH grant application and should consist of an Abstract (1 page), Specific Aims (1 page), Background and Significance (2-4 pages), Experimental design and a description of methods and analysis (no more than 8 pages), and Literature Cited. The proposal follows RO1 formatting guidelines: Arial, Helvetica, Palatino Linotype, or Georgia typeface, 11 point or larger, single-spaced, with at least one-half inch margins. The written proposal is to be completed and presented to the student's thesis committee by the end of the spring quarter of the second year. Students should contact their thesis committee members well in advance to schedule their meeting. The date, time and the location must be shared with the Cluster Office, as well as the final title of the proposal. Copies of the proposal must be sent to each member of the thesis committee a minimum of one week prior to the scheduled date of the meeting. In the event that circumstances indicate a different schedule and/or the student's thesis committee is unable to meet prior to the end of spring quarter, the student must secure permission from the CCB Chair to postpone the qualifying exam. **All members of the student's thesis committee must be present for the Qualifying Exam.** The thesis committee will submit a written evaluation of the defense that indicates whether the student has passed or not. If not, the committee will specify appropriate remedies, which could include a re-take of the exam. CCB students are encouraged to complete their QE in Spring or Summer quarter. **Students must pass the qualifying exam by the end of his/her ninth quarter in residency** (see Divisional Policy).

### **Individual Development Plans**

All CCB students are required to draw up an **Individual Development Plan** to promote both effective mentoring by their PI and thesis committee, but also to help ensure that appropriate career goals are achieved by the student in a timely manner. The IDP is drawn up on an (approximately) annual basis, in parallel with their preliminary exam, thesis proposal defense/qualifying exam at the end of their second year, and subsequent committee meetings. In addition to strong and early performance in their research project and plans for publication, IDP plans should also include mention of attendance at major symposia, as well regular seminars and meetings with outside faculty, and application for pre-doctoral fellowships. Additional components include discussion of when and how to apply for both post-doctoral fellowships, early contact with potential post-doctoral mentors, alternative career options and interaction with the **Office of Career Advancement** at UChicago, who can work with students individually to prepare materials and provide assistance in effective career development.

The Biological Sciences Division mandates that student use the following interactive web form for their individual development plan: [www.myidp.sciencecareers.org](http://www.myidp.sciencecareers.org). Part of the plan requires consultation with a mentor – this mentor may be the students' PI, but may also be any individual with a mentoring relationship to the student (other faculty, advisors in the Graduate Affairs Office, other science professionals). Once completed, students must send the certificate of completion to the cluster office. IDPs may be discussed at the thesis committee meetings at the students' discretion; they are a confidential document that are presented only at the students' thesis meeting and in discussion with their PI and program director.

### **Meetings with the Dissertation Committee**

Before each annual committee meeting, students submit a written summary of their progress to committee members (at least one week ahead of time). The report should be approximately 2-4 pages in length and contain a concise summary of progress, including previous aims and outcomes as well as future goals and a time line. A brief update (less than one page) on progress on Individual Development Plans is also required. At the beginning and end of the meeting, committee members will meet privately to discuss any confidential matters regarding the student. Following the meeting, the dissertation committee chair will submit a written evaluation of the student's progress. This report should provide an accurate account of the committee meeting and will be given to the student.

Thesis committee meetings must take place every 6-12 months and the Cluster Administrator should be informed of the date, time, and location of each meeting at least one week ahead of time. A copy of their progress report should be submitted to the Cluster administrator at least one week ahead of time. The frequency of these meetings will be determined by committee members, in consultation with students, and based on student progress or other issues that might affect the timing of meetings. No student is allowed to continue for more than 12 months in the program without a thesis committee meeting.

### **Student Progress toward Degree**

Students are normally expected to write and defend their thesis research in their 4<sup>th</sup> or 5<sup>th</sup> year. At the end of **five years** in graduate residence, students must petition the Curriculum Committee for the right to continue in the Program if they have not yet defended or petitioned to prepare and defend their thesis. Each student must outline the reasons why progress toward degree completion has been delayed, and the Curriculum Committee will arrive at a decision in consultation with the student's dissertation committee. Approval from the Curriculum Committee is required for the student to continue in the Program.

### **Probation and Dismissals** (excerpted and modified from the BSD/OGA Transfer-withdrawal Policy)

If an advanced student is deemed by the thesis committee to be making insufficient progress, the student can be placed on formal academic probation. Probation requires a clear set of written expectations that are approved by the program chair to be provided to the student. The time line in which these expectations need to be met should also be clearly stated. The Office of Graduate Affairs will be notified when students are placed on probation. The thesis committee chair and program head are responsible for assessing whether the terms of the probation period have been adequately met. In cases where a student is unable to meet expectations by the end of the probation period, the program will recommend that the student be dismissed from the Division of Biological Sciences. A recommendation for a student to be dismissed from the BSD graduate programs must be approved by the Associate Dean of Graduate Students, in consultation with a standing Faculty Committee on Student Withdrawals. Students may appeal the recommendation of dismissal in a letter addressed to the Associate Dean of Graduate Students who may convene a formal meeting with the standing Faculty Committee on Student Withdrawals to review this recommendation. Attendance at this meeting will include the student and

program faculty. Combined degree students must follow the same policies as the other PhD students.

### **Petitioning to Prepare the Dissertation**

After completion of a substantial body of work, students are expected to request permission from their dissertation committee to write and defend their dissertation. This meeting should take place approximately 3 months before the student plans to graduate. Before this meeting, students must submit to committee members an outline of the proposed dissertation, including a listing of ongoing investigations to be completed before the defense and a list of published manuscripts. Following a private discussion of the student's progress, the student should present his/her thesis research to the dissertation committee, and following this presentation, all committee members must agree in writing that the student is ready to proceed with the final stages of his research/dissertation writing and identify areas that need to be completed prior to the defense. At least one first author peer-reviewed publication is **required** in order to be allowed to proceed to thesis defense. This manuscript must be in press and evidence of this should be presented if the work is not yet cited in PubMed. Manuscripts in preparation or submitted do not count towards this criteria.

### **Dissertation Defense Guidelines**

Each student is responsible for the preparation of a written detailed discourse describing his/her thesis project in the form of a dissertation. The dissertation is written upon completion of the majority of the experimental work and approval by the thesis committee. The format should follow the guidelines posted on the Ph.D. Dissertation Office Website [lib.uchicago.edu/e/phd/](http://lib.uchicago.edu/e/phd/). Once the mentor agrees that the document is well written and complete, the student can submit the dissertation to the other thesis committee members.

Once the dissertation has been submitted to the thesis committee, each member has two weeks to review the document and transmit any comments concerning major deficiencies to the student. The student is expected to prepare a revised version of the dissertation addressing these deficiencies (usually within a two week period). The revised version of the dissertation document must be returned to the thesis committee members no later than one week before the oral defense date.

It is recognized that each thesis project, and therefore each dissertation, will be different. As such, no specific requirements should be instituted for its length or content. However, it is expected that the vast majority of dissertations should conform to the following guidelines. The student is encouraged to review selected dissertations in the program office for examples of format, content and quality.

- a) The total length of the document should normally be 125 - 250 pages (inclusive), in order to provide the level of detail expected of a document of this nature.
- b) The Introduction should be 20 - 40 pages long. It should contain a focused description of the background relevant to the thesis topic.

- c) The Materials and Methods section should be 20 - 60 pages long. It should describe the details of all experiments used, even those that have been published elsewhere. This section should be able to serve as a useful laboratory resource for future generations of investigators in the research group.
- d) The Results section should be 60 - 100 pages long, including figures and tables. In general, the figures and tables should occupy 1/2 - one page each. Figures should be shown in the written thesis for all results mentioned as "data not shown" in publications by the student. Figures should be original or published by the author. Figures from review articles authored by others are not acceptable because of copyright restrictions, as the thesis dissertation is a public document. If published figures not generated by the student must be used, the student must obtain written permission from the publisher. The numbers of figures and tables relative to text in the Results section should be determined by the mentor and the student.
- e) The Discussion section should be 25 - 50 pages long. This section should be a scholarly discourse that puts the thesis work in the context of the relevant fields. Related work of others, and differences in experimental outcome or interpretation should be addressed. The student should clearly indicate what is new or unique about his/her work and how it contributes to the field. The quality of the Introduction and Discussion sections should be such that they could form the core of a review article suitable for publication in a peer-reviewed journal.

Some students may elect to prepare the Results Section as chapters that are directly from their published manuscripts. These chapters may contain the published introduction, results, and discussion. However, the Materials and Methods for published papers are generally not sufficient for a thesis, and thus a more thorough version should be included in the overall Materials and Methods section (described in section c above) of the thesis instead of in the individual chapters. Furthermore, in addition to the Materials and Methods section, the student is still required to write an overall Introduction and Discussion as described in sections b and e above.

### **Thesis Defense**

The thesis defense is composed of two parts. The first part is a public presentation of the thesis project in which the student presents his/her work orally before an audience of peers and answers questions relevant to the project. The seminar should be prepared and rehearsed with the mentor's guidance. The student should avoid complicated slides and focus the presentation on objectives, approaches and interpretation of results. Acknowledgments should be limited to less than 5 minutes at the end of the presentation. The second part is a private defense by the student of both the thesis project and the dissertation document in front of the thesis committee. Since this is the last opportunity the committee has to ensure the quality of our graduates, the private defense will continue until each member is satisfied with the student's performance or until the committee decides that the student has failed the defense examination. Even though the committee may feel comfortable that the student has passed the examination

and will complete an acceptable dissertation document, the Ph.D. requirements are not complete until the committee is satisfied with the revised version of the thesis document.

Each student is responsible for scheduling his or her own Thesis Defense. Once the student has a date and time, he or she should notify the Cluster Office. A student can schedule a date for the defense at the time that the initial version of the dissertation document is submitted to all thesis committee members, to be set no earlier than four weeks after the reception of the dissertation by the committee members.

It should be noted that the thesis requirement is not considered fulfilled until the student has submitted the Dissertation electronically and received confirmation from the Dissertation Office that it is complete. Since the thesis requirement is necessary for the awarding of the Ph.D. degree, a student has not fulfilled the degree requirements until the thesis has been formally submitted. Individuals cannot be hired as postdoctoral fellows without satisfying all Ph.D. requirements.

As a courtesy, the student should provide members of his/her committee with a final bound copy of the thesis, unless the committee member indicates otherwise.

(The "Thesis Requirement" document was adapted from the University of Texas thesis guidelines 2004.)

The University web site has invaluable information regarding the preparation of the thesis and various deadlines. The link is [lib.uchicago.edu/e/phd/](http://lib.uchicago.edu/e/phd/).

A few deadlines to keep in mind:

- a) You must apply to graduate by the end of the first week of the quarter that you plan to graduate.
- b) You must be registered and paying tuition during the quarter that your degree is awarded. Thus, if you miss the deadline for submission of the dissertation, your graduation will be delayed until the following quarter and the University will charge tuition, even if you have left for another position.
- c) The deadline for submission of the approved thesis and all necessary documents is the Friday of the 7<sup>th</sup> week of the quarter. The exact dates can be seen at the web site mentioned above.
- d) The public defense will preferably be held no later than 2 weeks prior to the thesis submission, or the 5<sup>th</sup> week of the quarter in which the student will graduate. Please note that students may publicly defend their thesis in the quarter prior to when they will actually graduate.
- e) All Dissertations must be submitted electronically. Please visit this website for detailed instructions: [lib.uchicago.edu/e/phd/](http://lib.uchicago.edu/e/phd/).

## **Graduation**

Once the student knows that he/she is ready to begin writing the dissertation and plans to graduate, the student should notify the Cluster Office immediately. The student will also need to update his/her expected graduation date via his/her myUChicago account. Once updated, the graduation form will populate within the account and must be

completed no later than the first week of the quarter in which he/she plans to graduate. This is a hard deadline and the Registrar's office will not grant an exception if it is missed.

The Dissertation Office (<http://www.lib.uchicago.edu/e/phd/>) is the best source of information regarding your thesis and the graduation process. Dissertations are submitted online through the ETD website, and you must sign up for an account through the dissertation office website. Classes reviewing the ETD site and the submission process are available the 2<sup>nd</sup> or 3rd week of each quarter – sign up at <https://training.uchicago.edu>. Once you register for graduation, the Dissertation Office will be in contact with you throughout the quarter in which graduation is expected regarding deadlines and requirements.

After you notify the Cluster Office and register for graduation on your myUChicago account, you will need to schedule your defense date. If you are not able to schedule a room, the Cluster Office can assist you with this. The Cluster Office will send an announcement out once we receive all of your defense information.

All members of your committee must receive a copy of your thesis at least 2 weeks before your defense date and all members must be present during your defense. If committee faculty attendance is an issue, please contact Graduate Student Administrator.

After your committee has signed off on your defense and any required changes to the thesis have been made, you submit your thesis on the ETD site. The Cluster Office will be notified when this is complete, and we will ensure that your program chair receives a copy of the thesis to review and signs off on the Departmental Approval Form that is submitted to the Dissertation Office as final approval. This is the final step in completing the graduation requirements.

Information regarding convocation can be found here: [convocation.uchicago.edu](http://convocation.uchicago.edu)

## **REGISTRATION**

### **General Information**

About one week before the dates designated for registration, the Cluster Administrator will email the students informing them of the days and times when they should register. First year students will meet with the Committee Chair and the Cluster Administrator to discuss procedures during Orientation Week.

### **Leave of Absence**

During Scholastic and Research Residence a student may, if necessary, apply for a Leave of Absence from the PhD program to be approved by the Committee Chair. A Leave of Absence may only be taken for a maximum of 6 months.

### **Pro-Forma Registration**

Students in Advanced Residence, whose dissertation research requires residence away from Chicago, may register pro-forma. It provides registration as a full-time student with



reduced tuition. Pro-forma status establishes a good faith relationship between the student and the University. The following regulations apply:

- a) Pro-forma registration is approved for only one academic year at a time.
- b) Applications for pro-forma registration must be approved in writing by the Program Chair. The Chair's signature confirms that the student will be working at another institution 100+ miles away from the University of Chicago and that the work is recognized as essential to the dissertation. Students applying for pro-forma status must have been admitted into candidacy and have had dissertation topics approved. For students on the Graduate Residence Track, pro-forma status will normally begin only after completion of Scholastic Residence.
- c) An applicant for renewal of pro-forma status must show the Program Chair that good use has been made of the time already spent "on location" and that additional time is essential to completing the original task. Renewals of pro-forma status must be approved by the Dean of Students.
- d) A student on pro-forma status may not be gainfully employed for more than 19 hours per week.
- e) Pro-forma students may not use the facilities of the University or the time of its faculty, except for progress reports that may be required by the students' departments.
- f) A copy of the approved applications must be filed with the Registrar.
- g) The Registrar will certify that a pro-forma student is duly registered at the University to any agency requiring such certification.
- h) The fact that a registration is pro-forma will be noted on the student's academic record.
- i) Pro-forma registrations do not count toward satisfying a student's residence requirements toward a degree.
- j) Students must have satisfied all course requirements, including Scientific Ethics and completed TAs.

### **FINANCIAL AID**

All students registered in the PhD program are provided with adequate financial aid. **Financial aid is guaranteed to all incoming students, subject to satisfactory academic performance.** Support for subsequent years of study is subject to the student's satisfactory research progress, as determined by the faculty sponsor, the Committee, and the Division of Biological Sciences.

## Sources of Support

Students receive tuition, payment of fees, plus a stipend. The various sources of support are:

- Training grants
- External fellowships
- University fellowships
- Research assistantships

## Payment of Stipend Checks

University fellowships and NIH checks are paid in equal quarterly installments at the beginning of each quarter and cover the calendar year. Taxes are owed on, but not deducted from, these stipend checks (see section on "Taxes" below).

Advanced students are generally paid from their advisors' funds under the title "Research Assistant Type B" (RA-Type B). RA-Type B students are paid on a monthly basis on the last working day of each month. Taxes will be deducted from the RA-Type B checks.

University fellowships and NIH training grants pay for student health insurance, fees, and tuition without the student having to make separate payments.

Health Insurance and fees are included in RA-Type B monthly stipends. Students should complete a payroll deduction form so their student health insurance and fees are automatically deducted from their monthly check. Not completing a payroll deduction form will require the student to pay for these costs, upfront and in full, prior to the start of each quarter. The Cluster Office and Office of Graduate Affairs will be in contact with students who need to complete this form in advance of the deadline.

Quarterly stipends are paid on the first day of the quarter for that quarter. Monthly stipends are paid on the last working day of the month, after you have worked the entire month. **\*\*\*When transitioning from quarterly to monthly, the last quarterly check (the one would be accustomed to budgeting for three months) must last four months. It is highly suggested that each month, while being paid quarterly, a small amount be set aside in a savings account to help during the transition month to monthly payroll.\*\*\*** If this becomes a problem, see the section "Loans" below.

If you have any questions about your stipend checks, please contact the Graduate Student Administrator.

## Taxes

Graduate student quarterly stipends are taxable by the State of Illinois and the Federal governments. Though taxes are not taken out of these checks when they are paid out to the student, students on training grant or fellowship support must file taxes and calculate and pay estimated quarterly taxes. IRS form 520 provides information on determining what portion of your stipend is taxable and how and when to pay taxes you owe. The forms are available from the IRS. Regenstein Library also carries tax forms (Reserve room, First Floor), particularly after January 1. The forms can also be found on-line.

## **Loans**

For information on the various types of loans that are available to graduate students, you should consult Graduate Financial Aid (1115 East 58<sup>th</sup> Street, Room 309, 773-702-6061 – [financialaid.uchicago.edu](http://financialaid.uchicago.edu)). This office can provide short-term loans during temporary financial crises (for example, if a stipend check is delayed or if you are transferring from a fellowship to an assistantship). The office also has up-to-date information on federally-sponsored student loan plans. The Department email is: [gradfinaid@uchicago.edu](mailto:gradfinaid@uchicago.edu).

Loan applications, for eligible students, are available at [financialaid.uchicago.edu](http://financialaid.uchicago.edu), and are processed through Graduate Financial Aid .

## **Travel to Scientific Meetings**

Attendance at scientific meetings is an important part of the educational process. Travel funds are normally available on training grants, and are distributed by the Training Grant Administrator. In general, funds are only given to students scheduled to present a paper or a poster at the meeting.

Should you wish to apply for such support, you should submit a formal request (with your advisor's approval) in writing to the grant administrator supplying the following information: purpose of meeting and relevance to the research; title, place and time of the meeting; (if applicable) title and authors of paper being presented; amount requested for travel, registration fees, food, and lodging.

There is a BSD Travel Award available to current students. Travel Awards are given twice a year, once in fall and once in spring, for travel within that calendar year. More information and the application can be found:

[gradprograms.bsd.uchicago.edu/current\\_students/travel\\_awards.html](http://gradprograms.bsd.uchicago.edu/current_students/travel_awards.html)

All travel reimbursements must be accompanied by a tax exempt form that you can get from the Cluster Office. This form must be signed by your PI or program chair and submitted with your travel expenses; if it is not, you will be required to pay taxes on your travel reimbursement.

## **MISCELLANEOUS CAMPUS INFORMATION**

### **Scientific Integrity and Ethical Conduct of Research**

The University offers an annual course encompassing formal seminars by faculty lecturers in areas pertaining to proper handling/reporting of scientific data and ethical considerations in research. The University of Chicago requires that all predoctoral and postdoctoral trainees, clinical researchers, and junior faculty attend the program on the responsible conduct of research. Different aspects of scientific ethics are covered each week, each led by one-two faculty members. The format varies, including faculty presentations followed by group discussions, faculty presentations with question and answer periods within the presentation time, or case study discussion. The attendees are required to complete two written assignments based on video vignettes from AAAS and written case studies, and to make small-group presentations to the rest of the class.

## **Seminars**

In addition to formal courses and seminars, there are many regularly scheduled research seminars that will help to keep students up-to-date on new developments in your field of research and related disciplines.

Students are required to attend their programs seminars, in addition to the Journal Club and Student Research Presentation, as well as any seminars funded by applicable training grants. First years shall also attend the weekly "All Stars" Course, which will allow Cluster faculty to present their research to the students. Schedules are provided by the Biomedical Sciences Cluster Office and can be found in a daily email called MyBSD: [birenheide.com/uchicago/events/allevvents.php](http://birenheide.com/uchicago/events/allevvents.php). Please sign up for the daily eBlast, as many Cluster Events are advertised this way: [lists.uchicago.edu/web/info/mybsd](http://lists.uchicago.edu/web/info/mybsd). Other event notices will be sent to your UChicago email address.

Other seminar series or events of interest can be found posted around campus and via the MyBSD daily eBlast:

\*If you have not receiving MyBSD emails, please visit this link:

[pondside.uchicago.edu/~feder/myBSDHelp.htm](http://pondside.uchicago.edu/~feder/myBSDHelp.htm)

or

[lists.uchicago.edu/web/info/mybsd](http://lists.uchicago.edu/web/info/mybsd)

View all current event listings: [birenheide.com/uchicago/events/allevvents.php](http://birenheide.com/uchicago/events/allevvents.php)

## **THE GORDON CENTER FOR INTEGRATIVE SCIENCE (GCIS)**

This interdivisional research facility encompasses 420,000 square feet providing offices and laboratories for approximately 100 faculty (929 East 57<sup>th</sup> Street). The GCIS houses BSD departments including the Ben May Department for Cancer Research, the Department of Biochemistry and Molecular Biology, and the Howard Hughes Medical Institute. Physical Science Department (PSD) includes the Institute of Biophysical Dynamics, the Materials Research Science and Engineering Center, the James Franck Institute and the Chemistry Department.

## **THE BIOLOGICAL SCIENCES LEARNING CENTER (BSLC ) AND JULES KNAPP MEDICAL RESEARCH BUILDING (JFK)**

The Biological Sciences Learning Center and Jules F. Knapp Medical Research Building is located at 924 East 57<sup>th</sup> Street, across from the GCIS Building Atrium Entrances. The Learning Center (south half of the building) provides classrooms for undergraduate, graduate, and medical programs. In addition the Office of Graduate and Postdoctoral Affairs (OGPA) and Office of Medical Education (OME) for the Division of Biological Sciences are located in the Learning Center. The Knapp Building (JFK - north half of the building) houses laboratories, research facilities and faculty offices in the areas of molecular cardiology, immunology, oncology, and neurobiology.

## **THE GWEN AND JULES KNAPP CENTER FOR BIOMEDICAL DISCOVERY BUILDING (KCBD)**

The Gwen and Jules Knapp Center for Biomedical Discovery Building is located next to the BSLC & JFK Buildings (900 East 57<sup>th</sup> Street). The Center includes the Ludwig Center for Metastasis Research; Beverly Duchossois Cancer Laboratories; Kovler Diabetes Center;

Institute for Genomics and Systems Biology; and researchers from the Department of Pediatrics; Department of Biochemistry and Molecular Biology; and Department of Medicine's Gastroenterology, Endocrinology, and Hematology/Oncology Sections.

## **LIBRARIES**

The John Crerar Library, 5738 South Ellis Avenue, 702-7715, combines the University collections in biological sciences, medicine, and the physical sciences. Users with valid University of Chicago ID's or Library cards have access to all floors and stack areas during all library hours. Present your Chicago Card I.D. to the attendant at the front door. The library is adjacent to the Cummings Life Science Center and is connected by tunnels to Cummings, and the Medical Center.

The first floor of Crerar contains the major service units. The Circulation Desk (2-7409) is located to the left of the entrance atrium. Reserve materials for all science courses except math, computer science, and statistics are held at the Circulation Desk, as well as a permanent reserve collection of current medical textbooks and very heavily used science periodicals. The Science Reference Department (2-7715) is located to the right of the entrance atrium, together with the science microforms. The Library subscribes to an extensive collection of electronic journals and several online databases.

For library hours and other info: [lib.uchicago.edu](http://lib.uchicago.edu)

## **Bursar's Office**

The Bursar's Office, located at 6030 South Ellis Avenue, 2<sup>nd</sup> floor. (Hours: Monday through Friday, 9:00 am to 4:00 pm).

Information can be found at: [bursar.uchicago.edu](http://bursar.uchicago.edu)

Main Phone Number	2-8000
Tuition Inquiries & Bursar Restrictions	2-7086

## **University Ticket Center**

The University Ticket Center, located in the Reynolds Club, sells tickets to most campus events including Major Activities Board concerts, Rockefeller Chapel productions, Music Department concerts, and Summer Nights productions.

## **Student Health Center**

Please refer to documentation distributed during University and Divisional orientation. The website is: [healthcare.uchicago.edu](http://healthcare.uchicago.edu)

## **Student Counseling Service**

Student counseling is a separate service from the Student Health Center. They are located at 5555 S. Woodlawn Avenue and provide a broad range of mental health services, including needs assessment, psychotherapy, psychiatric consultation, academic skills assessments (time management, stress management, interpersonal issues), support groups, referrals, emergency services and health promotion and wellness programs. Their website is: <http://counseling.uchicago.edu/>

### **Computing Facilities**

Academic and Public Computing runs computing facilities in Regenstein and Crerar libraries, as well as the USITE (Central Users' Site) at Harper Library (WB 310; 2-7894). The facilities provide access to a variety of computing equipment, including IBM PS/2, a variety of Macintosh and NeXT workstations, and they also supply manuals and documentation. Students may apply for personal computing accounts in the Academic and Public Computing Office (Culver Hall, 2-7167). The USITE provides information about microcomputing and other microcomputing sites on campus. While the computing facilities in Regenstein and Crerar are not staffed, telephone assistance is available by calling the USITE (2-7894) from telephones in the facilities.

Much of the communication between students and faculty alike is via email. It is imperative that all Program students establish email accounts and sign-on to those accounts regularly (at least once a day). Email accounts can be set up at the Academic and Public Computing office on the first floor of Culver Hall.

### **Photocopying**

Photocopying machines are located in all libraries. The University of Chicago library contracts for basic copier services with Copico. Copico maintains a service desk on the first floor of the Regenstein Library, near the lobby phones. You may purchase a copy card from machines on the first floor of Regenstein, in Crerar, in Harper, or in the D'Angelo Law Library. You may also choose to add cash value to the magnetic strip on the back of your student ID card at any of the centers located around campus. This money can be used for photocopying or the purchase of snacks or drinks at machines located around campus and the food courts. In addition, Kinko's is located at 1319 East 57th Street 773-643-2424.

### **Lost and Found**

The Office of the Registrar (Administration 103, 2-7891) serves as a collection point for items found in the University's academic buildings and quadrangles. For items found in the University Medical Center, the Office of Medical Center Security (Room AMB M-12, 2-1583 or Security Dispatch AMB M41, 2-6262) serves as the collection point.

## **TRANSPORTATION**

### **Campus Bus**

The Office of Transportation and Parking for Facilities Services coordinates with the Office of Community Affairs and works closely with the Aldermen's offices, the City of Chicago, and the Chicago Transit Authority (CTA). The campus bus service is comprised the #170 Midway, #171 Hyde Park, #172 Kenwood routes.

For Transportation information, please visit:  
[safety-security.uchicago.edu/transportation](http://safety-security.uchicago.edu/transportation)

Students ride the #170, 171, and 172 free with a UCID. Regular CTA fares apply for the other bus routes. Passes can be purchased at the Chicago Card Office in the Regenstein Library, Room 100F, Monday-Friday, 8:30 am-5:00 pm or by visiting [transitchicago.com](http://transitchicago.com) or calling 1-888- YOUR-CTA.

The University also operates a free Evening Bus Service that covers the Hyde Park-Kenwood neighborhood. The buses operate on 30-minute schedules between 6:00 pm until about 1:00 am Sunday through Thursday, and until 2:00 am on Friday and Saturday. They depart from in front of the Regenstein Library and from the Main Quadrangle. The schedule changes during University breaks and Summer Quarter. Maps and other information can be found at:

[safety-security.uchicago.edu/transportation](http://safety-security.uchicago.edu/transportation)

Route maps and schedules for all buses are available at the UC Office of Graduate Affairs, Reynolds Club Information Desk, University Bookstore, Regenstein Library Reference Desk, and Law School Reception Desk and online.

### **Ugo NightRide Shuttles**

The NightRide Program is a shuttle service for the entire campus community on a fixed schedule along highly used routes. The goal is to provide safe, timely and reliable transportation during late-night hours to faculty, students and staff throughout campus and the surrounding area. The program operates from 5:00 p.m. to 4:00 a.m. on Sunday through Wednesday, and 5:00 p.m. to 6:00 a.m. on Thursday, Friday and Saturday.

This service will run approximately every 20-30 minutes throughout the evening. The routes are accessible within 1-2 blocks of nearly every campus building; all residence halls are a designated stop, and each route operates in a forward and reverse direction. A map of the routes can be found here on the Transportation website ([http://safety-security.uchicago.edu/services/ugo\\_nightride\\_shuttles/](http://safety-security.uchicago.edu/services/ugo_nightride_shuttles/)) and the TransLoc system (<http://uchicago.transloc.com/>) allows for up-to-date tracking information.

Please forward any feedback of this program to [nightride@lists.uchicago.edu](mailto:nightride@lists.uchicago.edu).

### **Umbrella Service**

Anyone within the University Police coverage area may request a police escort at any time if they feel uncomfortable with their surroundings. Call 773-702-8181 and give your location; the first available patrol car will be dispatched to accompany you as you walk to your destination. You may also call the University Police dispatcher at 123 from any campus phone.

Website: <http://uchicago.edu/safety/resources.shtml>

### **Parking**

The Parking unit of Transportation & Parking Services is responsible for the development and execution of approved parking policies, administration of the parking system, collection of approved fees and the enforcement of parking regulations. You may obtain an assigned parking space on campus by paying a monthly fee. Assignments for campus lots are available at the Campus Parking Office, 2-8969, located at 5525 South Ellis Avenue.

Website: <http://safety-security.uchicago.edu/transportation/>

Email: [parking@uchicago.edu](mailto:parking@uchicago.edu)

## **RECREATION ON AND NEAR CAMPUS**

### **General Information**

#### Facilities

*The Reynolds Club*, located at 5706 S. University Ave., is the University's primary student center and is often thought of as the hub of student life. The building offers a variety of dining options, as well as performance spaces and meeting rooms to be reserved for students free of charge.

*Also located in the building:*

The Reynolds Club is home to *Hutchinson Commons*, a food facility serving a plethora of food options, including pizza, Indian cuisine, sandwiches, sushi, and more. The building also houses two coffee shops: *The C-Shop*, where you can get milkshakes for \$1 on Wednesdays, and *Hallowed Grounds*, the student run coffee shop on the second floor.

Website for Coffee Shops: <http://studentactivities.uchicago.edu/reynolds-club>

The University *Barbershop*, located in the basement of the Reynolds Club has been known for its precise, quick haircuts at the hands of Silvestre and Mitch for 35 years. Stop by between 8am and 6pm to indulge in a quick trim.

Website for Barbershop: <http://studentactivities.uchicago.edu/reynolds-club>

WHPK, the University's legendary radio station, is located in the Bell Tower of the Reynolds Club. WHPK, "The Pride of the South Side", has been broadcasting to Hyde Park and the South Side of Chicago for over 50 years and is dedicated to playing non-mainstream music and providing a voice to the community and local politicians about local and global concerns. WHPK Website: [whpk.org](http://whpk.org)

*University Theater*, located on the 1st and 3rd floors of the Reynolds Club, is the oldest running College Theater program in the country. Since its inception in 1898 University Theater has been responsible for the production of over 3,000 productions ranging from main stages in our two theater spaces to site specific productions in Hutchinson Quad.

Website for University Theater: [taps.uchicago.edu](http://taps.uchicago.edu)

*Ida Noyes Hall*, located at 1212 E. 59th Street, is an 82,000 square foot facility originally designed to be a women's gymnasium and social center at the University of Chicago. Over the years, the facility has undergone modest changes and has hosted many events, large and small, for the University community. The central goal of Ida Noyes Hall is to provide facilities and services to student organizations and university departments.

Ida Noyes Hall is also home to Career Advising and Planning Services (CAPS)\*, which is located on the 2nd and 3rd floors of the building, the Maroon\* (located in the Lower Level), and The Pub\* (also located in the Lower Level). Each year, Ida Noyes Hall hosts a variety of RSO activities, department events, corporate recruiting sessions, parties, and special events.



The Ida Noyes gymnasium was converted into Max Palevsky Cinema\* in 1987. Since that time, Doc Films has been screening movies every night of the academic year.

Websites:

Main Portal Website for Office of the Reynolds Club & Student Activities:  
[studentactivities.uchicago.edu](http://studentactivities.uchicago.edu)

CAPS: [careeradvancement.uchicago.edu](http://careeradvancement.uchicago.edu)

Maroon: [maroon.uchicago.edu](http://maroon.uchicago.edu) or [chicagomaroon.com](http://chicagomaroon.com)

The Pub: [studentactivities.uchicago.edu/orcsas-pub](http://studentactivities.uchicago.edu/orcsas-pub)

Doc Films: [docfilms.uchicago.edu/dev/](http://docfilms.uchicago.edu/dev/)

Dining: [dining.uchicago.edu](http://dining.uchicago.edu)

### Your University of Chicago Connections

Quick Links List:	<a href="http://uchicago.edu/quicklinks">uchicago.edu/quicklinks</a>
UChicago Home:	<a href="http://uchicago.edu">uchicago.edu</a>
About UChicago:	<a href="http://uchicago.edu/about">uchicago.edu/about</a>
UChicago Chronicle:	<a href="http://chronicle.uchicago.edu">chronicle.uchicago.edu</a>
Maroon Athletics:	<a href="http://athletics.uchicago.edu">athletics.uchicago.edu</a>
The UChicago Maroon:	<a href="http://chicagomaroon.com">chicagomaroon.com</a>
The University of Chicago Magazine:	<a href="http://mag.uchicago.edu">mag.uchicago.edu</a>
University News Service:	<a href="http://news.uchicago.edu">news.uchicago.edu</a>

### Chicago

Chicago is a fantastic city for music, theatre, and dining out. The Chicago Symphony, the Lyric Opera, Music of the Baroque, jazz, and blues clubs, the Goodman Theatre, and off-loop theatres are all excellent. Both inexpensive ethnic restaurants and expensive special-occasion restaurants abound.

Information on events in Chicago is plentiful (see below). One of the best sources is the monthly *Chicago Magazine*, available at most newsstands. *Chicago Magazine* rates restaurants, compiles a complete calendar for the coming month, and generally includes a feature or two on getting the most out of the city. The Friday and Sunday *Sun-Times* and *Tribune* have good sections on the week's events. In addition, the *Reader*, available free in the Reynolds Club, the Bookstore, and Regenstein Library (delivered Thursday night or Friday morning), has great information on music, movies, dance and shows.

### Chicago on the Web

City of Chicago: [cityofchicago.org](http://cityofchicago.org)

Centerstage Chicago (music, food, bars, film, theater, etc.): [chicago.com](http://chicago.com)

Metra Train Schedules: [metrarail.com](http://metrarail.com)

### Festivals and Exhibits

Ravinia Music Festival - all summer long, a wide variety of music: [ravinia.org](http://ravinia.org)

Chicago Symphony Orchestra, jazz, country and more in a beautiful outdoor park: [cso.org](http://cso.org)

Movies in the Park – Movies in various parks in Chicago throughout the summer months:  
<http://www.chicagoparkdistrict.com/events/movies/>

Millenium Park Concert Series – Various music and dance events at Millenium Park:  
[http://www.cityofchicago.org/city/en/depts/dca/supp\\_info/millennium\\_park\\_upcomingevents.html](http://www.cityofchicago.org/city/en/depts/dca/supp_info/millennium_park_upcomingevents.html)

57th Street Art Fair - First weekend in June. 57th Street & Kimbark Avenue:  
[57thstreetartfair.org](http://57thstreetartfair.org)

Old Town Art Fair - Mid June. 1800 block of Orleans Street and Lincoln Park West and adjacent Menomonee, North Park and Wisconsin Streets: [oldtowntriangle.com](http://oldtowntriangle.com)

Chicago Blues Festival – Typically held the 2nd weekend in June in Grant Park - Petrillo Music Shell. World famous blues sounds of "Sweet Home Chicago" as well as showcasing talent from coast to coast. Call the Mayor's Office of Special Events for more information, 312-744-3315 or visit: [chicagofestivals.net/music/blues-2/blues](http://chicagofestivals.net/music/blues-2/blues)

The Japan Festival - A month-long series of unique Japanese cultural and educational events, including contemporary theater and film, concerts and exhibits. Visit: [japanfest-chicago.org](http://japanfest-chicago.org)

Chicago Gospel Festival - At Millennium Park in June. World's largest free outdoor gospel festival. Call the Mayor's Office of Special Events for more information, 312-744-3315 or visit: [www.choosechicago.com/things-to-do/chicago-events/chicago-gospel-music-festival](http://www.choosechicago.com/things-to-do/chicago-events/chicago-gospel-music-festival)

Printer's Row Book Fair- On South Dearborn from Congress to Polk, in June. Old, new, rare, antique and special books are for sale by booksellers in historic Printer's Row. Food vendors from Burnham Park's restaurants. Sponsored by the Chicago Tribune, 312-222-3986 or visit: [chicagotribune.com/entertainment/books/printersrowlitfest](http://chicagotribune.com/entertainment/books/printersrowlitfest)

Grant Park Concerts – June through August at Petrillo Music Shell. America's largest free Symphonic Music Festival featuring international soloists and conductors with the Grant Park Symphony Orchestra and Chorus. Call Grant Park Music Festival Offices for more info, 312-742-7638 or visit: [grantparkmusicfestival.com](http://grantparkmusicfestival.com)

Taste of Chicago - Held the last week of June and first week of July in Grant Park. Over 75 restaurants participate; there are nightly concerts at Petrillo Music Shell and live broadcasts from major radio stations. Call the Mayor's Office of Special Events for more information, 312-744-3315 or visit: [cityofchicago.org/city/en/depts/dca/supp\\_info/taste\\_of\\_chicago.html](http://cityofchicago.org/city/en/depts/dca/supp_info/taste_of_chicago.html)

Air and Water Show - Spectacular entertainment in the air and on the water at the North Avenue Beach in August. Sponsored by the Chicago Park District, 312-294-2200 or visit: [cityofchicago.org/city/en/depts/dca/supp\\_info/chicago\\_air\\_and\\_watershow.html](http://cityofchicago.org/city/en/depts/dca/supp_info/chicago_air_and_watershow.html)

Buckingham Fountain - The fountain runs from 8am to 11pm daily, typically from April to mid-October, depending on the weather. Every hour on the hour for 20 minutes the fountain produces a major water display. The center jet shoots 150feet in the air. At dusk, lights and music are added to the display. Located on Congress and Lake Shore Drive. History and fact can be found at:

[chicagoparkdistrict.com/parks/clarence-f-buckingham-memorial-fountain](http://chicagoparkdistrict.com/parks/clarence-f-buckingham-memorial-fountain)

Chicago Jazz Festival - Labor Day weekend in Grant Park. This event highlights Chicago's rich jazz tradition. Sponsored by the Mayor's Office of Special Events:

[cityofchicago.org/city/en/depts/dca/supp\\_info/chicago\\_jazz\\_festival.html](http://cityofchicago.org/city/en/depts/dca/supp_info/chicago_jazz_festival.html)

Oktoberfest - Usually late in September on Lincoln Avenue. Bands from Heidelberg and Chicago entertain daily; traditional German food and beer is served under giant tents.

Information is posted at: [chicagoevents.com/event.cfm?eid=222](http://chicagoevents.com/event.cfm?eid=222)

Chicago International Film Festival - The end of October at various Chicago theaters. This event features films from 40 countries. Online at [chicagofilmfestival.com](http://chicagofilmfestival.com)

Other Chicago Event and Location information: [choosechicago.com](http://choosechicago.com)

City Pass - Chicago CityPASS is a booklet of admission tickets to Chicago's 5 must-see attractions at 50% off the combined admission price:

[citypass.com/chicago/things-to-do-chicago](http://citypass.com/chicago/things-to-do-chicago)

## **APPENDIX**



## Biological Sciences Division Policy requirements for admission to candidacy for the degree of Ph.D.

1. Admission to candidacy for the degree of Ph.D. requires:
  - (a) Completion of Divisional Course requirements (nine courses, up to two of which may be substituted by graded laboratory rotations). A “B” average (GPA =3.0) must be maintained.
  - (b) Submission of a written thesis proposal and its defense to the satisfaction of the candidate’s thesis committee (note in some programs this defense also has a public component).
2. Admission to candidacy must occur, or be scheduled to occur, before the end of the student’s **ninth** quarter in residency (typically the Fall quarter of the 3<sup>rd</sup> year).
3. If admission to candidacy has not occurred by the end of the student’s ninth quarter then he/she will be unable to register at the beginning of the tenth quarter unless OGPA has approved a detailed plan from the program, student, and thesis advisor in which:
  - (a) The program adequately explains why candidacy has not yet been achieved.
  - (b) The student lays out a detailed plan for completion of the thesis proposal, with a timeline that does not extend beyond the end of their **eleventh** quarter in residency
  - (c) The thesis advisor provides a detailed plan, which includes frequency and nature of mentoring meetings, to assist the student in satisfactorily completing and defending the thesis proposal
4. Completion of the Ph.D. degree additionally requires:
  - (a) Completion of Divisional TA-ship requirements
  - (b) Completion of Divisional Ethics training requirements
  - (c) Completion of all graduate program-specific requirements.
  - (d) Submission and oral defense, to the satisfaction of the student’s thesis committee and graduate program, of an original dissertation