8/21/19

CANCER BIOLOGY HANDBOOK

Important URL links:

Getting started:
https://biosciences.stanford.edu/current-students/incoming-new-students/

Cancer Biology Program
http://med.stanford.edu/cancerbiology.html

SUNet ID
http://accounts.stanford.edu

Encryption
Encryption of computers and other devices is required:
https://med.stanford.edu/datasecurity/

AXESS
Electronic records
http://axess.stanford.edu

Registrar's Office
Catalog of courses, policies, degree requirements, etc.
https://registrar.stanford.edu/

Honor Code and Fundamental Standards
Read about academic integrity, plagiarism, the standard of conduct for students at Stanford, etc.:
https://gradadmissions.stanford.edu/admitted-students/entering-stanford/honor-code-and-fundamental-standard

Wellness Resources
https://biosciences.stanford.edu/current-students/resources/health-and-wellness-resources/

OVERALL REQUIREMENTS FOR GRADUATION

135 Credits for coursework, including research, required courses and electives of choice
Advancing to candidacy
One or more retreat talks (and posters all the other years, starting in the 2nd year)
One or more Pizza Talks
One first-author paper submitted to a peer-reviewed journal
Written dissertation and oral defense

8/21/19

FIRST YEAR

General resources:

http://med.stanford.edu/cancerbiology/StudentResources.html

CCRTP Boot Camp: Students must participate in this multi-day orientation to clinical and basic biology at the beginning of the first year.

http://med.stanford.edu/cancer/training/ccrtp.html

Annual Retreat: Students must attend the annual Cancer Biology Program conference, which provides an introduction to the research ongoing in laboratories in the program and an opportunity for networking with students and faculty in the program.

https://med.stanford.edu/cancerbiology/events/AnnualScientificConference.html

First-Year Mentors: Each first-year student will be assigned a first-year faculty mentor with whom he/she should meet to discuss rotation choices, classes, fellowship applications, and any other areas of concern. Meeting at the beginning of the fall quarter and the end of the spring quarter before choosing a thesis laboratory are the minimum requirements. A form must be filled out by the first year advisor to document this meeting at the end of the year.

Fellowships: Students are encouraged to apply for the National Science Foundation (NSF) and National Defense Science and Engineering Graduate (NSDEG) fellowships; discussions with their mentors and program directors will help determine if these applications should be submitted the first year. First-year mentors should provide feedback on the proposals. A special fellowship-writing program is held by senior Cancer Biology graduate students in the fall of the first year to help with preparation of the applications.

Laboratory Rotations: Students typically do 3 rotations in laboratories during the first year, to identify a laboratory of interest for their thesis work. Students need approval from the program before starting a rotation. Requests for only 2 rotations must be approved by the Directors. Each rotation typically lasts one quarter, but it is possible to do two shorter rotations each lasting half a quarter, with permission from the Directors. Students are required to do the equivalent of 2 full rotations in laboratories of faculty affiliated with the Cancer Biology program before they can choose their PhD labs (e.g. 2 quarter-long rotations or 1 quarter-long rotation and 2 half rotations in affiliated labs). Participating faculty:

http://med.stanford.edu/cancerbiology/ParticipatingFaculty.html

Rotations in the summer before the first year are possible:

https://biosciences.stanford.edu/current/diversity/advance/

Numerous faculty members present their research programs at various events (e.g. the annual retreat, the fall journal club, or the seminar series) to help first-year students select potential rotations. First-year mentors can also provide advice. Students are encouraged to meet with numerous potential rotation mentors, to help choose. A discussion session with second year students is also held at the beginning of the first quarter, and a database of past rotations is accessible to students:

https://stanford.edu/~liirene/cbio-rotations/script.html

No more than 2 students from the program can rotate in the same lab at the same time.

An evaluation must be completed by the student and the faculty member at the end of each rotation:

http://med.stanford.edu/cancerbiology/StudentResources/_jcr_content/main/panel_builder_1/panel_0/download/file.res/LabRotationEvaluation.pdf

Joining a laboratory: At the end of the rotations, students will select a laboratory for thesis work, after discussion with their first-year mentors. The first-year mentor must sign a form to document this conversation. The choice of the lab must also be communicated to the program administrator and approved by the Directors. If the student decides to do his/her PhD as a joint student between two laboratories, there must be one primary faculty PhD advisor. We expect faculty thesis advisors to have an active role in the advising process, including by monitoring progress frequently and by helping define and develop realistic educational career plans through regular interactions with the advisee.

Year 1 - thesis lab form choice: http://med.stanford.edu/cancerbiology/StudentResources.html

NOTE: Should a Cancer Biology student wish to join the laboratory of a faculty member that is not affiliated with the program, that faculty member must join the program to serve as a Ph.D. advisor for a Cancer Biology student.

No more than 2 students from the Cancer Biology program can join the same lab the same year. At any given time, one lab cannot have more than 5 Cancer Biology students.

IDP: Students must fill out Individual Development Plan forms with their thesis advisors within 30 days of joining the lab, typically during the summer quarter.

https://biosciences.stanford.edu/current/idp/

Required Coursework: A minimum of 135 units is required for receipt of the Ph.D. from Stanford*. Students must register for exactly 10 units every quarter[&,†].

http://med.stanford.edu/cancerbiology/HOME/Curriculum.html

Fall[#]	Foundations	(5 units – BIOS 200)
	Molecular and Genetic Basis of Cancer	(4 units – CBIO 240[¥])
	Journal Club - Faculty presentations	(1 unit – CBIO 280)
	Seminar/pizza talk series[#]	(1 unit – CBIO 245)
Winter	Journal Club	(1 unit – CBIO 280)
	Seminar/pizza talk series	(1 unit – CBIO 245)
Spring	Cellular and Clinical Aspects of Cancer	(4 units – CBIO 242[¥])
	Journal Club	(1 unit – CBIO 280)
	Seminar/pizza talk series	(1 unit – CBIO 245)

Winter or Spring: MED 255 is the required Responsible Conduct in Research course (1 unit), and it is offered every quarter but it fills up very fast. Wake up early to be able to sign at up 8 AM!

* Transfer students may receive credit for up to 45 units of appropriate graduate study elsewhere, and at least 90 units must be completed at Stanford toward the Ph.D.

[&] Register for Graduate Research (CBIO 399) as needed to maintain enrollment in 10 units each quarter, including summer, until you reach TGR status (135 units), and then register for CBIO 802 (zero units).

[†] For all courses, use L. Attardi or J. Sage as your advisor until you find a rotation lab.

[#] To avoid going over 10 units in the fall quarter, do not sign up for one of the 1-unit courses (CBIO 245 or CBIO280); however, note that these two classes are still required for 1st (and 2nd)-year students, and attendance will be monitored.

[¥] CBIO 240 and CBIO 242 are the only two courses taken for letter grades.

NOTE: The courses listed above (BIOS 200, CBIO 240, CBIO 280, CBIO 245, CBIO 242) must all be taken during the first year and cannot be replaced by electives or other activities. Also note that attendance is always taken for CBIO 245 and CBIO 280, and only 1, exceptionally 2, missed classes per quarter will be allowed. For each quarter in which more than 2 classes are missed, then the student will have to take an additional quarter after the 2nd year.

Elective Coursework: A variety of courses are available as electives, according to the individual student's interests. If desired, different specialization tracks listed on the Cancer Biology Program website can be selected (e.g. Computational biology). In the first year, winter and spring quarters are ideal times to pursue elective coursework. A list of courses can be found here:

https://explorecourses.stanford.edu

SECOND YEAR

Annual Retreat: Students must attend the annual Cancer Biology Program conference every year and they must present their work every year in the form of a poster or a talk. Second-year students will present a poster. Note that each student in the program is required to give at least one talk at the retreat during graduate school, and two talks are recommended.

Qualifying Exam: Each student must write a proposal based on his/her thesis work and defend it in front of a committee of 3 faculty members, in order to advance to candidacy. The advisor does not attend. In a case where a committee member is absent, the exam must be rescheduled. The qualifying exam must be done before the end of December of the second year. Each student is responsible for scheduling his/her own examination to conform to the above deadline. If the deadline is missed, the Program will consider that the student failed the exam. At least 2 committee members must be from the Cancer Biology program, and the committee must be approved by the Program Directors before it is finalized.

The exam itself consists of an NIH-style written grant proposal and an oral examination. The proposal is to be handed out to committee members no later than 10 days prior to the examination. The format of the proposal is 7 pages, including figures but excluding references, with 1.0 line spacing, Arial 11 font, and 0.5-inch margins. The first page is a Specific Aims page, and other sections include Background-Significance and Research Plan (including a discussion of alternative approaches). For the oral examination, the goals are for the student to demonstrate:

1. A broad knowledge and understanding of the field
2. A historical perspective, and identification of seminal contributions to the field
3. Knowledge of experimental procedures
4. Critical judgment in the evaluation of data and results
5. An ability to draw conclusions from proposed experiments and to propose alternatives

This is an “on-topic” exam where the student is expected to defend the work that he/she proposes for a thesis project. Just prior to beginning of the oral exam, the student’s advisor is expected to meet with the examination committee for a brief closed-door session without the student present. After the advisor provides some background about the student to the committee, the student will then be invited into the room to begin his/her presentation and the student’s advisor will leave. Once the advisor leaves the room, the qualifying examination committee will designate a Chair, who will be formally in charge of the proceedings and will decide when the exam is over. Generally, students prepare a 30-minute oral presentation that reviews the background, but largely focuses on the Specific Aims and the proposed experiments. When the Chair determines that the examination is completed (generally after about 60-90 minutes), the student is asked to leave the room and the committee deliberates in private about the student’s performance. A student’s performance will be deemed satisfactory or unsatisfactory by a simple majority vote of the qualifying examination committee. The student will be assessed on his/her written proposal, oral presentation, and mastery of the specific field of research including background literature and experimental techniques, and general knowledge about the broader field of cancer biology. The decision of the examination committee is conveyed orally to the student immediately following the exam. In addition, the Chair is responsible for summarizing the strengths and weaknesses of the written proposal and oral presentation on the examination form. The original examination form must be given to the Program Administrator.

If the qualifying examination committee deems the student’s performance unsatisfactory, the committee can request a revision or retake of the written proposal, the oral examination, or both, prior to the end of spring quarter, second year. If the student fails the second examination, he/she will be dismissed from the program.

Year 2 – Pass qualifying exam form: http://med.stanford.edu/cancerbiology/StudentResources.html

Advancing to candidacy: After a student has completed non-research Cancer Biology Program

requirements, he/she qualifies for doctoral candidacy. Most students file for doctoral candidacy in the Summer Quarter of their second year.

Year 2 – Advance to candidacy form: http://med.stanford.edu/cancerbiology/StudentResources.html

Fellowships: Second-year students can still apply for fellowships, including the National Science Foundation (NSF) and National Defense Science and Engineering Graduate (NSDEG) fellowships. A special fellowship-writing program is held by more senior graduate students in the fall of the first year to help with preparation of the applications.

Required Coursework:

Fall	Journal Club - Faculty presentations	(1 units – CBIO 280)
	Seminar/pizza talk series	(1 units – CBIO 245)
Winter	Journal Club	(1 units – CBIO 280)
	Seminar/pizza talk series	(1 units – CBIO 245)
Spring	Journal Club	(1 units – CBIO 280)
	Seminar/pizza talk series	(1 units – CBIO 245)

NOTE: The courses listed above (CBIO 280, CBIO 245) must all be taken during the second year and cannot be replaced by electives or other activities. Also note that attendance is always taken for CBIO 245 and CBIO 280, and only 1, exceptionally 2, missed classes per quarter will be allowed. For each quarter in which more than 2 classes are missed, then the student will have to take an additional quarter after the 2nd year.

Elective Coursework: Students should continue to fulfill any elective requirements needed. Exactly 10 units are required each quarter.

Individual Development Plan (IDP): Students must fill out IDP forms to make a plan for the next year's goals and schedule a time to discuss the form with their advisors.
https://biosciences.stanford.edu/current/idp/

Thesis Research: Students will conduct research in their PhD labs.

Thesis Committee: Choosing a qualifying exam committee provides a good opportunity to select faculty members who will be able to provide key input into the project and may become members of a permanent thesis committee, although the student and his/her mentor can decide to choose different committee members for the thesis committee. We advise to not bring the thesis committee form to the qualifying exam so the student has more time to choose a thesis committee subsequently.

Students will select thesis committees of 3 individuals that they feel will best help them during the course of their thesis work. At least 2 committee members must be from the Cancer Biology program, and the committee must be approved by the Program Directors before it is finalized. This can be the same set of faculty members present at the qualifying exam, or substitutions can be made. The thesis committee is best selected with the help of the student's thesis advisor.

NOTE: The first thesis committee meeting should be convened within one year of the qualifying exam.

THIRD/FOURTH YEAR

Grant Writing Academy and Senior Fellowships: Many students will apply for a fellowship in the 3rd year, including the NRSA (NIH). Stanford has a grant-writing academy to help:

https://biosciences.stanford.edu/current/grants-fellowships/

Annual Retreat: Students must attend the annual Cancer Biology Program conference every year and they must present their work every year in the form of a poster or a talk. Note that each student in the program is required to give at least one talk at the retreat during graduate school, and two talks are recommended. The 3th and 4th years are usually good times to give a talk.

Pizza Talk Presentation: Students must give at least one long-format pizza talk to gain experience in delivering a longer-format talk.

Elective Coursework: Coursework should be finished by the end of the Winter quarter in the 4th year. At this point, students should have a total of 135 units and will have achieved "TGR" status (Terminal Graduate Registration). Students may still take courses up to 3 units per quarter.

Teaching: Students may opt to do TAships, for teaching experience. They will need to secure approval from their PhD advisors before committing to a TAship.

Year 3/4 – Teaching Assistant form: http://med.stanford.edu/cancerbiology/StudentResources.html

Individual Development Plan (IDP): Students must fill out an IDP form to make a plan for the next year's goals and schedule a time to discuss the form with their advisors.

Thesis Research: Students will perform thesis research.

Thesis Committee Meeting: In the 3rd year, students will schedule a meeting no later than 1 year after the qualifying exam with their thesis committees to present their research. Beginning in the 4th year, students must meet twice a year with their thesis committees, to solicit feedback on their research and on progressing toward the goals of publications and thesis defense. Students should schedule their committee meeting ~3-6 months before it is convened. Program administrators can help book a room if needed. If one member of the committee cannot attend, the student can meet that person individually before or after.

	December	June
2nd year	Qualifying Exam	
3rd year	**Thesis Committee Meeting**	
4th year	**Thesis Committee Meeting**	**Thesis Committee Meeting**
5th year	Thesis Committee Meeting	Thesis Committee Meeting

FIFTH YEAR

Some students may graduate in the 3rd or 4th year, as long as they have completed all the program requirements, but students should aim to wrap up in their 5th year.

Responsible conduct of research: Students must re-train every 4 years, so students who have not graduated yet must take MED 255 again or take BIOS 258.

Annual Retreat: Students must continue to attend the required annual Cancer Biology Program conference and present their research. If a student has not yet given a retreat talk, this is a requirement for graduation and it must be done in the 5th year.

Pizza Talk Presentation: Students must give one long-format pizza talk to gain experience in delivering a longer-format talk. This is a requirement for graduation, so if the student has not yet given a Pizza talk, he/she must do so in the 5th year.

Individual Development Plan (IDP): Students must fill out an IDP form to make a plan for finishing up and schedule a time to discuss the form with their advisors.

Thesis Research: Students will perform thesis research.

Biannual Thesis Committee Meetings: Students must meet twice a year with their thesis committees. If a student has completed the first author paper requirement and is on track for graduating, the student may send the paper and an update to the committee and the Program Directors for review in lieu of one of the committee meetings.

Students should schedule their thesis defenses ~6 months before they are convened. Contact Grace Batoon for a checklist ~6 months before the defense; the checklist includes pointers to organize a timeline, to identify a chair, and to book a room.

	December	June
2nd year	Qualifying Exam	
3rd year	Thesis Committee Meeting	
4th year	Thesis Committee Meeting	Thesis Committee Meeting
5th year	**Thesis Committee Meeting***	**Thesis Committee Meeting***

* Or thesis defense

OVERALL REQUIREMENTS FOR GRADUATION

135 Credits for research and coursework, including required courses and electives of choice
Advancing to candidacy
One or more retreat talk (and posters all the other years, starting in the 2nd year)
One or more Pizza Talk
One first-author paper submitted to a peer-reviewed journal
Written dissertation and oral defense