

4+1 BS/MS PROGRAM IN CANCER BIOLOGY AND TRANSLATIONAL ONCOLOGY Emory University

Information and Guidelines for Students and Faculty

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The policies and regulations in this handbook are in immediate effect and supersede those in previous versions

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Notes on terminology: despite the common usage within the CB program to refer to all research as “thesis research” and all committees as “thesis committees”, the Laney Graduate School (LGS) uses these terms more specifically. Dissertation is the more appropriate term for the research and document resulting in a doctorate (Ph.D.), while thesis is reserved for those resulting in a Master’s degree. Similarly, the LGS refers to the committee of faculty members that advise the student during the dissertation or thesis research as the advisory committee. We have tried in this document to be consistent with both common usage and LGS usage to minimize confusion by using both terms to introduce key sections of the Guidelines (e.g., see III. F., above). In addition, the LGS uses the term DGS for what we in CB call the Program Director while we typically use the same term/acronym (DGS) for the person, typically working closely with the Program Director, who deals more immediately with student issues. Thus, on all LGS forms where it asks for the signature of the DGS, you should actually get the signature of the CB Program Director.

Abbreviations used in the text include: **CB**, Cancer Biology Graduate Program; **DGS**, Director of Graduate Studies; **GDBBS**, Graduate Division of Biological and Biomedical Sciences; **LGS**, Laney Graduate School (also referred to at times as the Graduate School of Arts and Sciences or GSAS); **MSTP**, Medical Scientist Training Program; **PLE**, Post-rotation Laboratory Experience.

These guidelines of the policies and expectations of the Program in Cancer Biology (CB) will be continually reviewed and updated in an effort to keep them current. Official decisions on any aspect are rendered by the Executive Committee in consultation with the Director, DGS, and the faculty of the Program.

The CB Program provides students with the opportunity to develop theoretical and practical research competence in Cancer Biology and related disciplines. Research interests of the faculty are described on-line at the Graduate Division of Biological and Biomedical Sciences (GDBBS) and CB Program websites.

PART I. CB GUIDELINES FOR THE 4+1 BS/MS PROGRAM IN CANCER BIOLOGY AND TRANSLATIONAL ONCOLOGY

A. Goal of the 4+1 Program

The 4+1 BS/MS program focuses on training the next generation of cancer professionals who may seek a variety of career paths in which a MS degree in Cancer Biology and Translational Oncology will provide them with advanced knowledge and expertise in cancer biology and translational oncology, yet without the need for a full 4-5 year laboratory training in research as we offer with our PhD degree. The 4+1 is restricted to Emory undergraduate students.

B. Coursework requirements

The 4+1 program provides 38 graduate level credit hours (20 in required courses and 18 in laboratory research), which exceeds the minimal requirement for a MS degree in the graduate school (30 credit hours). At the start of their fourth year of undergraduate study the students will select a faculty advisor and be introduced to laboratory-based scientific research. Once they complete their senior year, the 4+1 students will stay on through the summer and complete a fifth academic year (the “+1” year), during which they will continue their graduate coursework (9 credit hours in fall and spring semesters).

The students will start their MS laboratory research in their senior year by taking the undergraduate course Biol499r (4 credits; about 16h/week in the lab) in the fall and spring semesters. By November of year 4 they will select their MS thesis committee composed of their Advisor and two additional faculty. This committee will meet every 6 months and will help guide the student’s research. The students will continue their research project during the summer and through the fall and spring semesters of year 5 under the aegis of course IBS599r (Advanced Research; 6 credit hours/semester).

The core curriculum consists of the following courses:

Cancer Biology I (IBS523) and II (IBS524) in year 4. This course provides the fundamentals about cancer, including the hallmarks of cancer and the molecular mechanisms underlying them. Each course features two written exams with combined essay and knowledge based questions.

Advanced Graduate Seminar (CB790r) in years 4 and 5. This course is a cancer biology seminar where invited speakers present their research every Friday at noon at the Winship Cancer Institute (Elkin Cancer Biology seminar series). The 4+1 students in year 5 will present a 30-minute formal seminar on their MS thesis research during the Elkin Seminar Series as part of the Advanced

Graduate Seminar course (CB 790R). At the Elkin Lectures, the students are gaining advanced knowledge in cancer and valuable experience by presenting their research to a professional audience and also learn how external speakers present and answer questions.

Introductory Graduate Seminar (CB570r) in year 5. This is a course that meets 2 hours per week and where students learn to present and critically analyze the scientific literature on cancer. Major learning objectives include how to critically evaluate the literature, research approaches and methods, and the development of oral presentation skills. Evaluation is based on the quality of student presentations and class participation. CB570r can be taken either in the Fall or the Spring semester, depending on selected Elective.

Elective (in year 5). The students can choose an elective course (usually 2-3 credits/course) or take the Cancer Clinical Colloquium (IBS 500R) or the Cancer Pharmacology (CB 761) as an elective.

Course #	Course name	Credits
<u>Year 04-Fall</u>		
Biol 499r*	Research for credit I	
IBS 523	Cancer Biology I	4
CB 790r	Advanced Graduate Seminar	2
<u>Year 04-Spring</u>		
Biol 499r*	Research for credit II	
IBS 524	Cancer Biology II	4
CB 790r	Advanced Graduate Seminar	2
<u>Year 04-Summer</u>		
IBS 599r	Advanced Research (for MS thesis)	6
<u>Year 05-Fall</u>		
	(9 credit hours/semester for full time status)	
CB 570r	Introductory Graduate Seminar	2
IBS 599r	Advanced Research (for MS thesis)	6
CB 790r	Advanced Graduate Seminar	2
<u>Year 05-Spring</u>		
XXX	Elective	2-3
IBS 599r	Advanced Research (for MS thesis)	6
CB 790r	Advanced Graduate Seminar	2
<u>Year 05-June</u>		
	Written MS thesis due; Oral defense of MS thesis (Thesis completed and deposited with LGS by July 15)	
		Total: 38**

Regular examinations assess student learning during these courses; the course directors share grades with the director of graduate studies and the program director following each exam. Any student earning a grade less than a B meets with the director of graduate studies to put remedial solutions in place (for example tutoring by a senior student).

* credit for Biol 499r goes to the undergraduate degree;

**a minimum of 30 credits are required for a MS degree

C. Teaching Requirement

There is no teaching requirement of the Laney Graduate School for the 4+1 Master Degree.

D. Grade criteria and Master's Thesis

Grades in the Laney Graduate School range from A (4.0) to C (2.0) and F (0); there is no D grade. Some courses are taken on a Satisfactory/Unsatisfactory (S/U) basis. Advisors will assign grades in IBS523, IBS524, CB570r, Bio499r (undergraduate research for 4+1), or CB599r (Thesis Research) and are encouraged to use grading that reflects performance and overall progress made each semester. Students must maintain an average of B (3.0) or better in all coursework each semester. Students with a semester GPA below 3.0 will be put on academic probation, and be notified in writing of such by the LGS. Students on academic probation due to their grade point average have one semester to bring their semester grade point average up to 3.0. They will be notified in writing by the Program Director and the DGS and the Executive Committee will be informed. Students must also receive a grade of B- (2.7) or better in each of their required classes. Failed classes can be retaken, except for the laboratory-based research (Bio499r and CB599r); a grade of C or below in a single semester of either of those two classes will lead to dismissal.

A grade of U or F in any course, or a semester GPA below 3.0 in any two semesters, will result in dismissal. If a student who is dismissed believes there were extenuating circumstances that adversely affected his/her performance, he/she may submit to the division Director a written appeal for consideration of reinstatement. The appeal should clearly outline the extenuating circumstances and must be submitted within one month of grades being recorded by the Office of the Registrar. The GDBBS Executive Committee will review all appeals.

Two assessments of unsatisfactory progress by the student's thesis committee also constitute grounds for termination from the 4+1 Program.

Requirements for the MS degree include satisfactory completion of all required coursework, completion of a written Master's thesis, and an oral defense of the thesis research. The master's thesis must represent a scholarly body of work indicating a rigorously applied research effort and must minimally describe the significance of the research proposal, the hypotheses being tested, the experimental approach(es) undertaken, any data generated, conclusions drawn, and a proposal for future work. Both the written master's thesis AND its oral defense must be passed by the master's thesis committee before a degree is awarded.

The MS thesis project consists of a 20-month laboratory-based original research experience where the students pursue a scientific hypothesis. The faculty will carefully weigh the scope of the research project so that it is commensurate with the time available for laboratory work by the students. At the end of their research project they will present the results in the format of a written document (MS thesis) that follows the structure of a scientific publication (introduction, methods, results including figures and tables, discussion, references). The experimental data have to be conducted in a rigorous fashion, include all expected controls and be accompanied by clear figure legends. The Results section will clearly describe the findings, whether they support or infirm the hypothesis. The Discussion will provide data interpretation, a comparison with prior findings of the literature and forward-looking statements. The students will also be encouraged to report their scientific results at a

conference (oral presentation or poster) and in a scientific publication. The student will first seek feedback on the written thesis document from their thesis advisor, and then the document will be presented in final form to the M.S. thesis committee (advisor and 2 other expert faculty) for their formal input. The revised document has to be sent to the committee for final approval, and, thereafter, authorization to set a date for an oral defense of the M.S. thesis will be granted. The defense will consist of an initial formal oral presentation of the thesis work (15-20 min. in duration) followed by questioning by the thesis committee for a total exam duration of approximately 1 hour. The M.S. thesis committee administers the defense in a private setting. The committee will focus their questions on the scientific project carried out in the laboratory as described in the thesis document and related topics. At the end of the defense, the examiners will consider the quality of the research accomplished, its presentation in the MS thesis, and the result of the oral defense to cast their pass/fail votes and the student will pass the defense by majority vote. The students who fail the exam can petition the Executive Committee for a retake exam within 1 month. Failure will lead to dismissal from the M.S. track and those students will be offered a transcript reflecting credit hours and grades on the coursework taken.

Upon completion of all of the requirements, the student must complete a *Report of Completion of Requirements for Master's Degree*, which the members of the dissertation committee must sign indicating their vote. The Program Director or Director of Graduate Studies must also sign this form. An *Application for Degree* form must also be completed and submitted to the LGS. These forms are available from the Laney Graduate School or the CB web site. Both signed forms must be returned to the Laney Graduate School.

1. Appeals

Students who believe that an assigned grade is incorrect should first discuss the assigned grade with the course instructor. After discussion, students who do not think the problem has been resolved in this manner should address their concern to the Program Director or DGS, who will seek to resolve the matter with the instructor and the student. Consistent with principles of academic freedom, responsibility for evaluation of a student's course performance rests with the course instructor. Use of this procedure for resolution of a grade dispute will not prejudice in any way a student's rights under their Program, Laney Graduate School, or University student grievance procedures.

E. Length of Time to Degree

The MS degree of the 4+1 BS-MS program is awarded in the summer following the end of the academic year 5 (e.g. +1 year), typically in the June-August period, depending on thesis completion.

F. Grievance Policy

Students who have a potential grievance related to some aspect of their Program may discuss it with their DGS, PA, and/or the LGS Assistant Dean of Student Affairs for consultation before taking action, if desired. If the student decides they want to file an official grievance, they should notify their Program Director and/or DGS by providing a letter addressed to the Director and/or DGS that describes the grievance and relevant details. **If the grievance is related to an academic component or milestone, the student should submit their grievance letter within 30 days of the date the outcome was conveyed (i.e. posting of grade to transcript).** The Director and/or DGS may try, if possible and deemed appropriate, to resolve the grievance informally in conversation with

the student and relevant parties. If this is not successful or not appropriate, the Director and/or DGS will convene a meeting of the Program Executive Committee, which will review the grievance and provide an appropriate response. The Director and/or DGS may gather additional relevant information and will provide all information and the student's grievance letter to the Committee. The Committee will meet face-to-face to discuss the grievance and review relevant materials. A majority of the EC must be present and only those present may vote on the outcome. Votes will be taken via electronic ballot to ensure confidentiality. In all cases grievance decisions are confidential and should not be shared outside of the grievance meeting. Finally, the Director and/or DGS will provide a letter to the student via email notifying them of the outcome and options for next steps. If the grievance concerns the Director and/or DGS, the student follow the LGS Grievance Procedure found in the LGS Handbook under Honor, Conduct, and Grievance, Section 4.

PART II. OTHER ACTIVITIES

A. Seminars, Journal Clubs, and Symposia

Seminars hosted by a variety of programs and departments, are given by invited speakers throughout the academic year. Students are encouraged to participate in the scientific discussions and, when possible, arrangements are made for students to meet with guest speakers. In addition to the numerous seminars, other opportunities to participate in scientific discussions include journal clubs, data clubs, and yearly student-organized and run CB and GDBBS symposia. Attendance and participation at the Winship Cancer Institute Scientific Symposium is mandatory for all CB students and attendance at the annual GDBBS DSAC symposium is very strongly encouraged. These activities are not eligible for formal credit, but add to a well-rounded graduate education and should be viewed as an opportunity to learn about work in other fields.

B. Regional and National Scientific Meetings

Students are encouraged to present their research at regional and national scientific meetings. Some travel money is available for students making presentations at open meetings. These travel awards are given no more than once per student per year (September 1 – August 31). Applications for support should be made to the Graduate Student Council, the Division and the Program. Forms are available on the CB web site.

C. Student Leave

Graduate study is a full-time endeavor. Students receive a stipend and are expected to be actively attending classes or conducting research and working toward the degree year-round, including the period between terms. The time between terms (along with Fall and Spring Break) is considered an active part of the training period. Students should discuss breaks with their DGS (if in the first year) or Dissertation Advisor (after advisor selection) and receive approval in advance. Breaks should typically be limited to two weeks per year. Unauthorized absences may result in an unsatisfactory research grade for the term (i.e., in fall, spring, or summer), and could thereby lead to probation.

D. Parental Accommodation Policy

LGS Parental Accommodation Policy is for students with substantial parenting responsibility as a result of childbirth, care of newborn, or a newly adopted child. This policy guarantees PhD students a minimal level of accommodation during the transition of parenthood. For more information on the policy, eligibility requirements, and application procedure, go to the Laney Graduate School website.

E. Other Program Activities

The students in the graduate program in CB are an integral and vital part of the CB community. As such, they are encouraged to participate in diverse activities such as help with the annual new student recruitment process, participate in the program annual retreat and other social events that build community and create professional networking.

F. Outside Employment

Doctoral education demands full-time effort. Students receive stipends and tuition fellowships in order to allow them to commit the necessary time to their studies and research. Unrelated employment serves as a distraction and interferes with the ability of students to meet degree requirements in a timely manner. For these reasons, employment not directly related to students' degree requirements and professional development goals is strongly discouraged.

If additional income is absolutely necessary while a student is enrolled in the degree program, s/he must receive **prior** approval from her or his advisor and the Program Director/Director of Graduate Studies. The Program Director/Director of Graduate Studies has the prerogative to bring the request to the program's Executive Committee for discussion. Requests to work more than 10 hours a week require written approval from the GDBBS Director and then the Dean of the Laney Graduate School. Students who wish to request permission to seek employment should allow 30 days for review. In the rare cases in which approval is granted, students must ensure that employment does not interfere with research performance, progress toward degree, or any program requirements, including seminar attendance.

G. Student Support Services

Graduate school can be a stressful time on your body and mind. Be sure you are taking care of yourself. Go to Laney Graduate School student support page and the LGS/GDBBS support page for links to all student support services available to you.

<https://www.gs.emory.edu/guides/students/support.html>

H. Office of Accessibility Services (OAS)

“Emory provides all persons an equal opportunity to participate in and benefit from programs and services afforded to others. The Office of Accessibility Services (OAS), part of the Office of Equity and Inclusion, assists qualified students, faculty and staff with obtaining a variety of services and ensures that all matters of equal access, reasonable accommodation, and compliance are properly addressed.” OAS “is committed to providing access to campus resources and opportunities to allow students with disabilities to obtain a quality educational experience.”

Qualified students need to register with OAS and make a request for services. Confidentiality is honored and maintained.