Revised July 2007

GUIDELINES:
GRADUATE PROGRAM IN CANCER BIOLOGY

These guidelines supplement and expand the regulations of the Graduate School. Students and faculty are urged to read and be aware of the contents of the Graduate School Bulletin and Regulations.

I. General Information

A. Philosophy

The Cancer Biology Graduate Program is designed to train students for a career in basic and applied cancer research, as well as in related careers associated with the application of information through biotechnology and the dissemination of information to the next generation of scientists and to the lay public. Modern cancer research is based on a broad range of technical skills, including Molecular Biology, Cell Biology, Genetics, Biochemistry, and Bioinformatics, which the students will learn through course work and laboratory training. Training will extend to exercises designed to develop independent thinking, skills in oral and written presentation, analysis of data and information, and dissemination of information through teaching. Thus, the proposed program combines rigorous course work with laboratory training and exercises in writing, speaking, and teaching, designed collectively to provide students with the necessary theoretical and practical skills to launch productive careers. Students will be trained to be in a position to competitively pursue an increasingly wide range of available careers, including academic research, undergraduate teaching, science writing, and basic and applied science in the biotechnology and pharmaceutical industry.

B. Admission into the Program

A student interested in Cancer Biology, after completion of the Interdisciplinary Graduate Program in Biomedical Sciences (IGP) rotations and core coursework, will apply to join the Cancer Biology Graduate Program at the end of the second semester. Acceptance is monitored by the Graduate Executive Committee (GEC) and is contingent on satisfactory performance in both coursework and rotations during the first two semesters. In addition, acceptance into the program is contingent upon approval from the chair of the department in which the preceptor has a primary appointment. Official documentation of approval by all involved parties is provided by mandatory signing of the “Cancer Biology Graduate Program Responsibility Form”.

Students admitted into the MSTP (M.D./Ph.D.) Program in the School of Medicine are also eligible to enroll in the Cancer Biology Graduate Program. These students will rotate through the laboratories of program members during their first two years of Medical School, and can be admitted into the Program using the same procedure and criteria as entering IGP students. MSTP students are exempt from the Bioregulation course requirement as a result of the extensive coursework in Biochemistry, Physiology, Cell Biology, Microbiology, and Immunology in the Medical School curriculum. Advanced Cancer Biology remains a requirement. The transfer of one course from the Medical Curriculum into the Graduate Curriculum is allowed by the Graduate School.

The transfer of students into the Cancer Biology Graduate Program from another Program is dependent on the approval of the Graduate Executive committee (GEC, see below). In these instances, the Director of Graduate Studies (DGS) should be contacted by the student first to request evaluation by

the GEC and to assist the student in finding a suitable laboratory for his/her thesis work. Similarly, the DGS should be informed if a student intends to transfer out of the Cancer Biology Graduate Program so the DGS can assist with negotiating an appropriate course of action.

Continued admission to the program is contingent on adequate progress towards research goals as determined by the Dissertation Committee. In the event that a dissertation committee is not yet formed, situations including the inability to identify a Cancer Biology Graduate Program-approved research mentor/laboratory to perform dissertation research, and/or documented unethical, illegal, or dangerous conduct as defined by Vanderbilt University policies are grounds for dismissal from the program.

C. Administrative Structure

The Cancer Biology Graduate Program is run by the Program Director (currently Jin Chen), who is appointed by the Cancer Biology Department Chair (Lynn Matrisian). The Program Director also serves as the Director of Graduate Studies (DGS) for the Cancer Biology Program. In addition, the Chair appoints an IGP representative for Cancer Biology (currently Charles Lin), who represents the department on the IGP executive committee. Cancer Biology Program policy is monitored and enforced by the Graduate Executive Committee. The student coordinator is Debbie Craig.

1. Graduate Executive Committee (GEC). The GEC assists the Program Director in monitoring the progress and welfare of the students. Most issues can and should be resolved through consultation with the DGS, but there are limitations to the power and scope of the DGS with respect to certain types of conflict. The GEC exists to ensure fairness and to provide a general oversight role for the Cancer Biology Program. It provides an impartial mechanism for judging and resolving conflicts between and among students and faculty, and is empowered through the Department Chair to enforce its decisions. The GEC is selected by the Department Chair and the Program Director, and consists of at least 5 graduate faculty, including the Department Chair, the Program Director/DGS, the IGP representative, anda representative of the Biomedical Research, Education, and Training (BRET) office. These individuals meet as needed to arbitrate and resolve special situations that arise from time to time in the course of a student's graduate career. For example, if deemed necessary, the committee can prohibit faculty from taking on new students based on mentoring issues.

The responsibilities of the GEC are summarized below:

- monitor the program requirements and curriculum and revise guidelines as necessary
- evaluate/monitor the participating faculty
- resolve and enforce mentoring issues
- assure high standards in the academic program.
- make decisions regarding student performance, advancement, or dismissal when disputes arise

Current members of the GEC are Lynn Matrisian, Jin Chen, Charles Lin, Ann Richmond, Hal Moses and Roger Chalkley,.

a. The Program Director serves as official spokesperson for the Cancer Biology Graduate Program, the liaison with the Graduate School, and representative of the program in matters of university policy. He/she also serves as the departmental Director of Graduate Studies (DGS) and monitors the academic and research progress of each student throughout his or her training. He/she has frequent contact with the students and is responsible for explaining the requirements and expectations. The Program Director is also the student advocate when personal problems arise and in cases of possible faculty misconduct. In addition, he/she is aware of a wide variety of medical and counseling resources available to all students under circumstances that might extend beyond

departmental issues. Most student or faculty issues can and should be resolved through confidential interaction with the DGS. When necessary, conflicts can be referred to the GEC (see above).

b. The IGP Representative sits on the IGP Executive Committee, which selects incoming graduate students and determines IGP policy. He/she also acts as liaison between the graduate programs of the IGP and the Cancer Biology Program, and facilitates the transition of students from the IGP into the Program.

2. Qualifying Examination Parent Committee (QEPC). The QEPC is made up of 10 primary or secondary appointees to the department with experience with graduate student mentoring. The chair of the QEPC is the DGS. Members of the QEPC serve as Chairs of the qualifying examination committees. The QEPC meets regularly during the time of the qualifying examinations and is charged with maintaining consistent standards in examination format and consistent criteria for passing all components of the qualifying examination. The QEPC serves as the first-line arbitrator in the case of a dispute regarding the outcome of the Qualifying Examination.

D. Teaching

There is no formal teaching requirement. Students pursuing the doctorate may serve as teaching assistants in the Medical School courses offered by the department. Also, students are encouraged to assist in the Advanced Cancer Biology course organized by the Department. The Cancer Biology Student Association (CBSA) organizes a student taught technology course every year to assist new (2^{nd} year) cancer biology students preparing for their qualifying exam. Students are encouraged to participate in this team taught effort.

E. Master's Program

Students are admitted through the IGP with the intention of completing a Ph.D. degree. M.S. degrees can be awarded if this goal changes. The following criteria must be met for a M.S. Degree:

- satisfactory completion of 24h didactic and 36h total Ph.D. course work with a B average or better

- research activities resulting in either a first author publication, or a Thesis acceptable to the research mentor, the Graduate Executive Committee and the Graduate School. The thesis must have evidence of original investigation, advance knowledge, and contain introduction, materials and methods, results, and discussion sections.

II. Requirements for the Ph.D. Degree

A. Course requirements

1. The total number of graduate credits must conform to the specification of the Graduate School (i.e., 24 didactic hours and 72 total hours). Students will be expected to maintain a B (3.0) average. Student performance will be monitored by the DGS. If a student's grade point average (derived from didactic hours and research credit hours) drops below 3.0, he/she will be placed on probation. If the sub-par performance persists into subsequent semesters, the DGS and Graduate Executive Committee will work with the Graduate School in evaluating the student's options and he/she may be subject to dismissal from the Program.

2. The Program requires that students (except Medical Scientist Training program (MSTP students) complete the core curriculum governed by the IGP. In accordance with this program, each student rotates through laboratories of their choosing during the first year of their graduate studies. Students participate in experiments in these laboratories and write a short summary of their activities, which is submitted to the IGP. Grades, and a written evaluation of the student's performance, are provided to the IGP by the faculty member involved. As many as 14 hours didactic credit may be earned from the IGP curriculum excluding elective courses.

3. MSTP Cancer Biology students have the option of transferring either of the following courses which are particularly pertinent to training in Cancer Biology:

Cell and Tissue Biology: CBIO (CANB) 322, 4 credits.

Gross Anatomy: CBIO321, 7 credits.

2 hours credit for the MSTP seminar series can be counted once toward the requirement of 24 didactic hours.

4. All students enrolled in the Cancer Biology Program must take both Introductory and Advanced Cancer Biology (CANB 340 and 342), which are offered in the fall.

5. All students enrolled in the Cancer Biology Program are required to attend and participate in the departmental Seminar Series / Science Hour. There are no formal credits from the graduate school for this activity, but it is a critical forum for training in Cancer Biology. Regular attendance and participation by all faculty (primary and secondary) is strongly encouraged, and indeed, is part of the formal commitment these individuals make when they take a student into their lab. This is an important informal training ground for speaking and participating in conferences. Students should take advantage of the friendly environment to become more comfortable with asking questions and discussing data in public. It is strongly encouraged that all students present at least once by the end of the third year, and it is required that they present by the end of the fourth year. This is a 'research in progress' forum - it is not necessary to have a complete story. Instead, students should seek to improve their speaking skills, to advertise their projects to the immediate research community, and to seek help with conceptual and technical problems. The student coordinator will help students sign up, and students should contact her after they speak to have their name checked off the fourth year Science Hour list.

6. Training in Biomedical Statistics is required. In view of the movement to incorporate this topic into the required IGP Bioregulation course, it is not listed as a separate requirement. However, in the event that this training is inadequate, a separate course will be developed and will become a requirement for Cancer Biology graduate students.

7. Elective courses to reach the total of 24 didactic hours of formal courses (an additional 9 credits) are to be chosen from high-quality, formal 300 level courses given by the Departments of Cancer Biology, Cell and Developmental Biology, Biochemistry, Molecular Physiology and Biophysics, Pathology, and Pharmacology in the School of Medicine, or approved courses given by the Department of Biological Sciences in the School of Arts and Sciences. A list of available courses is found in the Graduate School Bulletin. The topic will be determined by the specific research interests of the student.

B. Mentoring Committee

The Vanderbilt BRET office mentoring guidelines suggest that graduate students form a team of mentors early in their graduate studies so that they can get input in the phase developing up to their qualifying exams and early on during their research. The mentoring committee will consist of 1-2

additional faculty members aside from the thesis advisor and will meet regularly to monitor the progress of the student. The student will select the mentoring committee in consultation with his/her thesis advisor.

B. Admission to the Ph.D. Candidacy (Qualifying Exam)

The qualifying exam for admission to Ph.D. candidacy consists of writing a grant in the NIH-NRSA postdoctoral format and defending the proposal orally before an examining committee of faculty. The main purpose of the exam is to determine whether the student possesses those critical and analytic skills needed for a scholarly career. It is also an important exercise in writing, communicating, and the grant writing process.

The qualifying exam consists of three major components:

1. The written proposal
2. The oral defense of the proposal
3. General knowledge

Each of the components can and should be evaluated separately, and it is possible to achieve a 'conditional pass' such that the student is requested to repeat one component of the exercise.

1. Preparing for the Exam

It is expected that students will have to take time away from the bench during the last month or two of preparation for the exam. It seems reasonable (but is not necessary) to spend half days in the lab over the final months. However, faculty expectations can vary widely as to how much time is appropriate. Some students handle it better than others, and some faculty are more understanding than others. One should do what is necessary to pass the exam. It is a realistic exercise in that it is not that different from the demands on faculty when confronting grant deadlines in the face of teaching and other commitments. Students and mentors should discuss the issue if necessary to reach an understanding. Sometimes new faculty members are not very cognizant of the demands of the exercise and the DGS can help with this.

a. The qualifying exam is taken soon after the spring semester of the student's second year at Vanderbilt (first year in our department). Throughout the second year, students should be considering possible research topics for the qualifying exam proposal (see below). The DGS will meet with the exam candidates sometime in **January** to brief students on topic selection and expectations.

b. **March** (exact date to be set on a yearly basis). Students will attend a grant writing workshop during which they will be given an overview of the qualifying exam process and presented with information on how to plan and prepare a grant proposal in the NIH-NRSA format. Students may obtain copies of the official NIH-NRSA directions, which specify page limits and other important details associated with this postdoc-level grant application (contact the student coordinator). The written portion of the grant is 15 pages, but official face pages, table of contents, etc. are also part of the document. Copies of outstanding proposals by students from previous years will be distributed.

c. **April 15**. Deadline for topic approval of topic from the DGS. The student should research and decide on a topic, and obtain preliminary clearance of its suitability from the DGS. The best way to do this is to email a paragraph describing the topic - not more than one page for entire email. Include a brief background, a rationale for the project, general approach and methodology, a hypothesis based on these items, and a preliminary list of up to three possible aims. It does not have to be formal or polished at this stage. The subject matter cannot be the same as ongoing projects in

the mentor's lab, but can involve related topics that may benefit the student's future dissertation work. [MSTP students can request more time if necessary because of the heavy work load in the spring semester, however if possible, it is better to keep on schedule with the others].

d. **May 15** (MSTP students can defer to Aug. 1 if necessary). Deadline for submission of qualifying exam abstracts. A copy of the abstract and aims should be submitted to the DGS by email. This document should constitute a formal and well thought out version of the topic approval document submitted for the April 15 deadline. Failure to meet this deadline can result in dismissal from the Graduate Program. In rare instances, the DGS may grant an extension. The DGS will use the abstracts to select appropriate faculty for examining committees.

e. The DGS will assign examining committees. In accordance to Graduate School rules for Qualifying Exam Committees, there must be at least 4 members of the Graduate Faculty on each committee (this includes the student's mentor) and at least one of these should not be a member of the Cancer Biology department. Each Examining Committee will consist of faculty chosen for their expertise in the subject area of the proposal and their prior experience with Qualifying Exams. The Chair of the Qualifying Exam Committee will be a member of the Qualifying Examination Parent committee (QEPC), which will meet regularly and assist with consistency across student examinations. The student will be informed of the members of his/her Examining Committee. He/she should contact them immediately, email them copies of the abstract, and arrange a time and place for the pre-examination meeting. The student coordinator will be available to assist in arranging the meeting if problems should arise. Faculty members are encouraged to be available during the last week of May and the first two weeks in June for pre-examination meetings.

2. Pre-examination Meeting

a. **Late May – early June**. The student holds a one-hour pre-examination meeting with his/her Examining Committee. Initially, the student will give a 15-20-minute presentation describing the background, rationale, hypothesis and aims of the grant proposal. Discussion with the committee regarding topic matter, feasibility of approach, and general scientific merit of the proposal will follow. The examining committee may recommend that the abstract be extensively revised, which will result in a follow- up pre-examination meeting. In this case, the follow up pre-examination meeting should be held as soon as possible after the first meeting, with the scheduling arranged by the student. The pre-examination process should ultimately lead to a clear understanding of the expectations regarding the proposal content between the student and Examining Committee. The pre-meeting is very important - it is far better to hold things up here, than to move ahead to the final event without a clear and workable plan.

b. Upon final approval of the proposal abstract by the examining committee, the student, mentor, and Committee members should set a date for the qualifying exam. The student should reserve a room for a three-hour block of time for the Oral Examination. It should take place about five weeks after acceptance of the abstract by the committee (i.e., after the successful pre-meeting if applicable). The student should provide committee members with the finished NRSA grant proposal at least one week before the oral examination meeting.

c. When an exam date is confirmed, the student is required to immediately inform the student coordinator and members of the examining committee of the confirmed date. The student coordinator is required by the Graduate School to notify them well in advance. A formal memo will be distributed to the committee members and the DGS two weeks prior to the exam. **If the student fails to notify the coordinator in time, this mechanism will fail and the exam will have to be rescheduled.**

3. Written Examination

a. NIH/ NRSA grant booklets can be obtained from the student coordinator. This document contains specific instructions regarding page length, etc. The student is required to complete the research plan, the front page, and the abstract page. While the student is not required to complete the portions of the grant dealing with animals, he/she must follow the NIH guidelines for the humane treatment of animals for any studies proposed.

b. The student should assume that the grant is for three years of support (a typical postdoctoral proposal) and that he/she has adequate supplies available for the proposed research.

c. The student is encouraged to refer to successful grant proposals to use as a guide. Examples are distributed at the March workshop.

d. The student is responsible for all scientific aspects of the proposal: (i.e. background information, approach, and design and methodology for all experiments). The student may ask general (but not specific) questions of anyone, including the advisor or other faculty members, on methodologies, format, references, etc.

e. Students are encouraged to have other students or postdocs critique the proposal for general overall readability and make suggestions to improve the format of the grant (i.e., amount of detail in the methods, clarity of why a specific experiment is being performed, etc.).

f. The written examination is separate from the oral examination. Members of the committee can request that the grant proposal be rewritten before the oral examination is completed if it is found unusually deficient. Specific comments regarding the deficiency should be conveyed to the student by the Chair of the examining committee and any other members who wish to contribute. The student must reschedule the examination in a timely manner.

4. Oral Examination

a. The student's mentor is required to attend the oral examination, and it should not proceed otherwise unless special allowance is granted by the Program Director. The mentor may only serve as an observer during the examining process. He/she is not allowed to ask or answer questions.

b. The examining committee will meet first to discuss the written examination and general strategy for the examination. (The student will be asked to leave the room for this pre-meeting).

c. The student will make a short presentation (~20 minutes) briefly describing the background information and the specific aims of the grant. The committee can (and usually does) interrupt this presentation with questions, such that the 20 minutes is significantly extended.

d. The questioning by the committee members will generally follow the topics included in the grant proposal, but can comprehensively cover any topics that the committee feels the student should be familiar. Questions will determine both the depth and breadth of the student's knowledge. For testing general knowledge, at least one question will be directed at each category: molecular biology, cell biology, biochemistry, and cancer biology. The time allocation for subsequent testing in any area of general knowledge will depend on the student's apparent knowledge in this field.

e. The committee will meet again following the oral examination and evaluate the student's performance. (The student will again be asked to leave while the committee deliberates and reaches a decision). Performance will be assessed in each of three areas:

(1) Written grant proposal
(2) Oral presentation and defense of proposal
(3) General knowledge (molecular biology, cell biology, biochemistry, and cancer biology)

Students must satisfactorily pass all three areas of the examination in order to pass the qualifying examination. If all three areas are found deficient, the examination can be rescheduled once. If one or two areas are found deficient, the committee can recommend a "conditional pass," and give the student one additional chance to repeat the part of the exam that is deemed inadequate. For example, the student might be required to rewrite one or several sections of the proposal or it may be necessary to repeat a particular aim where general knowledge or logic is lacking. Additionally, the student might be asked to research and write a report on a particular technical issue where knowledge is lacking. In the event that the area(s) under question is not satisfactorily addressed on the second try, the Qualifying Examination criteria are not met and the student must terminate enrollment in the Ph.D. program. An evaluation of suitability for a MS degree will occur at this time (see Section I E).

f. Following the post-exam meeting, the student will return to the meeting room and the chair of the committee will convey the results of the examination, followed by a written summary by e-mail. The chair of the committee is also responsible for informing the DGS of the results. If the examination must be repeated, a detailed description of expectations and suggestions to improve the deficiencies must be conveyed to the student and to the Qualifying Examination Parent Committee. The QEPC will provide advice to the examination committee as to the criteria required for passing the Qualifying Examination. In the case of a dispute regarding the result of the qualifying examination, the QEPC will act as an arbitrator, hearing both the committee and the student's viewpoint on the outcome of the examination.

C. Dissertation Committee and Proposal

1. Dissertation Committee Selection

a. A dissertation committee should be selected within 6 months of completion of the qualifying exam. The dissertation committee, chosen jointly by the student and mentor, will consist of at least 4 members of the Graduate Faculty (this includes the students' mentor). At least one of these must be from a different Ph.D. program at Vanderbilt. Although the mentor is responsible for the scientific direction of the dissertation research, one of the other committee members with an appointment in the Dept. of Cancer Biology will serve as the administrative chair of the committee. On occasion it may be appropriate to include an expert in the field from an institution outside Vanderbilt. If so, prior approval must be granted by the Dean of the Graduate School. (Obviously, such a choice complicates the arrangement and execution of committee meetings).

The choice of committee members can be critical and should be carefully considered. Committee members are considered co-mentors for the duration of the graduate career and can be extremely valuable assets, particularly if the primary mentor lacks expertise in a particular technology or field. Good scientists do not limit projects to their own restricted area of expertise, and students should consider whether their choices of committee members can close critical gaps in their mentor's experience. While students are always encouraged to seek external expertise, the individuals on the thesis committee will be especially committed as co-mentors to needs that unmet by primary mentors.

The thesis committee will oversee and approve the thesis project and continue to monitor the student's progress throughout the remainder of his/her graduate career. Committee meetings should be scheduled at least every 6 months, and can be more frequent if progress is slow or there is a particular issue to be resolved. The graduate student coordinator will send reminders to the student and the committee chair at the appropriate times. The Administrative Chair of the committee is responsible for assuring that these meetings are held at appropriate times, and for providing a brief written report of the student's progress. The report should be approved by all committee members and the student, and sent to the graduate student coordinator to be filed.

b. The student coordinator will contact the student and mentor 6 months following the qualifying exam to make sure that efforts are underway to select a dissertation committee and to satisfy the one year deadline for defense of the dissertation proposal.

c. The student is responsible for contacting and establishing the willingness of faculty members to serve on this committee. After selection of suitable committee members, the student should submit the list of names to the DGS for approval, and submit them to the student coordinator so that a formal record/file is established. (Note: There are particular requirements and issues that sometimes invalidate particular faculty).

2. Dissertation Proposal.

Within one year following the qualifying exam, the student is required to write and present a dissertation proposal in the form of an NIH R01 grant. The main difference between an NRSA (postdoc-level) and RO1 (faculty-level) proposal is length. The RO1 proposal can be up to 25 pages, as opposed to 15 for the NRSA. The dissertation proposal will be written and defended similarly to the qualifying exam, but it is not an exam. Instead, it is a collaboration between student and mentor and constitutes a mock business plan that organizes and outlines the plan of attack. Although the student is responsible for researching, organizing, and writing the proposal, he/she can and should seek advice from any relevant source, including the mentor and committee members. The defense itself is simply a formal version of the first committee meeting, and should result in agreement between student, mentor, and committee regarding the overall plan and direction.

a. The student and mentor will co-write the Research Plan of an NIH RO1 grant. This should be a comprehensive document, encompassing the background literature relevant to the proposed research, preliminary data (the student's data and other relevant preliminary data from the lab), and a plan of attack. Outside critiques are encouraged and the student should consult members of the dissertation committee or other faculty members. A copy of the dissertation proposal should be provided to each member of the dissertation committee by one week prior to the first meeting.

b. The student will make an oral presentation to the dissertation committee followed by a comprehensive discussion of the specific aims of the proposal. (Usually, there will be a brief pre-meeting where the student leaves the room and the faculty discusses the proposal and the student's progress). During the student's presentation, the mentor can and should feel free to participate when necessary to achieve the best possible research plan. The purpose of the discussion is to ensure that the student has the opportunity to receive advice and the opinions of the committee members in the endeavor to accomplish the goal of obtaining a Ph.D. degree. The student is responsible for setting the date and arranging the place for the oral presentation. A three-hour time slot should be scheduled.

c. At all stages of the student's graduate training, continuation in the program is contingent upon satisfactory progress in research-oriented activities. The student is required to meet with the dissertation committee once every six months to discuss progress. A short (1 - 2 pages)

written progress report should be emailed to committee members a few days prior to the meeting. The Administrative Chair of the dissertation committee is responsible for making sure that there is written feedback to the student on their progress and the expectations for the next meeting are clearly defined. A copy of the written communication should be submitted to the graduate student coordinator. The committee can consider more frequent meetings if necessary.

D. Dissertation Completion and Final Defense

1. Three to six months prior to the anticipated defense date, the student should schedule a committee meeting to review the dissertation progress and request permission from the committee to write. Permission should be granted on the basis of having demonstrated evidence of original research and thinking, and should represent a body of work that advances knowledge in the field of cancer biology.

2. Students are expected to have multiple first author publications as evidence of the successful completion of their Ph.D. dissertation research. The minimum requirement for the granting of the Ph.D. degree is one first-author paper in a peer-reviewed journal describing the dissertation research project (not a review article). The final defense will not be scheduled until there is at least one first author manuscript "in press". In extenuating circumstances, the oral defense can proceed but the signing of the first page of the written dissertation by the mentor and/or committee members will be delayed until a first-author manuscript has been accepted for publication.

3. The dissertation should be written in close consultation with the mentor, and the mentor must read and approve the dissertation before it is copied and distributed to other dissertation committee members. The dissertation must conform to the guidelines set by the Graduate School and must be submitted to the dissertation committee at least one week before the final defense. The student should consult the "Regulations" bulletin issued by the Graduate School for detailed information on the dissertation requirements. Further, students should consult with Graduate School personnel to be certain of required format. The student coordinator has packets of information for students preparing their dissertations. They were constructed by a recent graduate detailing the procedures that need to be followed, and should be very helpful.

4. The final defense is administered by the student's dissertation committee. **It is the student's responsibility to inform the student coordinator of the date, time, place, and title of the final defense.** Committee members should be informed at least three weeks prior to the defense, and the student coordinator notifies the Graduate School. Committee members will receive an official notice from the Graduate School. The date and time of this examination will be published in the Vanderbilt Calendar as a public announcement. The final defense must be taken at least 14 days before the end of the term in which the degree is to be conferred.

5. It is suggested that dissertation defense announcements, which includes the abstract and a list of publications, be distributed to the Cancer Biology Faculty. This will publicize the event and provide background information for them prior to attending the defense. Students should give the information to the student coordinator approximately two weeks prior to the defense date.

6. The defense begins with a public seminar. Following the seminar, the committee meets with the student for the final oral examination phase of the defense. The final examination is concerned with the student's dissertation, the literature relevant to the research topic, unanswered questions, conclusions, and the significance of the study. Passing the final oral examination is denoted by signatures of the dissertation committee members on the graduate student form. The signed form

should be submitted to the student coordinator for departmental records. Passing the written dissertation is denoted by signatures on the required page in the dissertation, and can occur at a later date if additions or corrections are required.

7. The policy regarding distribution of fees and costs associated with preparing the dissertation follows:

a. The department will pay the fees required by the Graduate School for binding and microfilming the dissertation for the Graduate School and for binding the copy for the Cancer Biology library.

b. The mentor will pay for figure expenses and for photocopying the dissertation drafts for him/herself and committee members.

Hard-bound copies of the dissertation for the mentor and department should be an original and on bond paper. Photocopied soft-bound copies are appropriate for committee members.
Most students choose to go to “Southern Bindery” for the binding of their Dissertations. Before making a trip to Southern Bindery, inform the student coordinator and he/she will call Southern Bindery and arrange the payment for the two copies that the department pays for. These include the copy for the mentor and the copy for the departmental library. The student is responsible for all other copies and should be prepared to pay for those up front. Copies of MS thesis need not be bound but should be presented to the Department of Cancer Biology at the same time as presentation to the Graduate School.