

Georgia Institute of Technology
School of Chemical & Biomolecular Engineering

Graduate Handbook

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1. Introduction

The purpose of this handbook is to outline special regulations and policies relevant to the graduate programs in the School of Chemical & Biomolecular Engineering. Institute regulations regarding graduate work at Georgia Tech can be found in the General Catalog available at <http://www.catalog.gatech.edu/>.

2. Classification of graduate students

Almost all graduate students in the School are admitted with *Full Graduate Standing* for study toward the MS or PhD degrees. In a few cases, a student may be admitted with *Special Graduate Standing*. Courses taken by students on special standing cannot be counted toward a graduate degree unless a petition is approved by the Institute Graduate Committee.

According to Institute rules, full-time graduate students must register for at least 12 hours per semester on a letter grade or pass/fail basis. A part-time student may register for no more than 11, and no less than 3 hours of credit (except during the semester of graduation – see below).

Course loads for students who have assistantships, fellowships or tuition waivers from the School of Chemical & Biomolecular Engineering are discussed below.

3. Course load requirements

In order to be eligible for reduced GRA/GTA tuition, students with GRA/GTA appointments in the School of Chemical & Biomolecular Engineering must enroll for 21

hours of credit in the Fall and Spring semesters, and 16 hours of credit in the Summer semester. These hours will normally consist of course credit hours, plus ChBE 7000 or ChBE 9000 credit hours for research, as appropriate.

The following policies, however, apply with respect to the graduating semester:

GRA/GTA appointments and the associated (reduced) tuition are only available for the **full semester**. In this case, students must plan to carry out their research and/or teaching duties for the full semester and **must** register as full-time GRA/GTAs (21 or 16 credit hours) for their graduating semester. No exceptions to this policy are allowed.

In the event that the research and/or teaching are completed before the end of the semester, then two options are available:

- The student may register for one credit hour of ChBE 7000 or ChBE 9000 during the graduating semester, and pay the appropriate fees based on residency status. This option may be exercised **one time only**.
- The student may register for a minimum of three credit hours of ChBE 7000 or ChBE 9000, and pay the appropriate fees based on residency status.

If the thesis is defended after the Institute thesis submission deadline for the semester, but before the beginning of the next semester, then the student may apply for a tuition waiver during the graduating semester. This must be done prior to the beginning of the graduating semester. Note that this waiver can be granted only if all degree requirements have been satisfied during or prior to the registration phase of the graduating semester.

In all cases, the School Graduate Office must be informed of the date of completion so that the student's payroll status can then be changed accordingly.

4. Financial assistance

Most graduate students in the School are appointed as GRA/GTAs when working toward the MS (thesis option) or PhD degrees. The normal terms of support for GRA/GTAs are contingent upon availability of funds and are based on satisfactory progress in coursework and research (discussed in the following sections). Support for MS students may be provided for a maximum of six semesters.

5. Dismissal policy

A graduate student appointed as a GRA/GTA at the MS (thesis option) or PhD level is expected to carry out research as part of his/her degree requirements. (GRA/GTAs may not therefore transfer to the MS (non-thesis option) without approval of their thesis advisor and the Associate Chair for Graduate Studies). The GRA/GTA appointment will normally be for one semester, with renewal subject to satisfactory progress towards the intended degree, including satisfactory progress in research. Research duties and research progress will be determined by the faculty/research advisor. Unsatisfactory performance in

research could lead to loss of research supervision, as well as non-renewal of the GRA/GTA appointment. This applies even if the student's GPA meets or exceeds the minimum set by the School.

A student whose research performance is determined to be unsatisfactory will receive a letter or e-mail from his/her research advisor listing all deficiencies and outlining the level of performance required to continue working with the advisor. This will be communicated to the student at least one month before the end of the semester, and a copy will be provided to the Associate Chair for Graduate Studies for inclusion in the student's file. The deficiencies must be remedied before the end of the semester in order to prevent dismissal from the advisor's research group and/or loss of GRA/GTA status. The GRA/GTA appointment will not normally be terminated before the end of a semester.

A student who no longer has an advisor may seek another advisor with help from the Associate Chair for Graduate Studies. A PhD student who cannot find a new advisor after one term must leave the School. A MS (thesis option) student who cannot find a new advisor after one term must change his/her status to that of a MS (non-thesis option) student, or leave the School. If there are extenuating circumstances, the Associate Chair for Graduate Studies may extend this period for one additional term at his/her discretion. A graduate student who is dismissed by the Institute for academic or disciplinary reasons will not normally be readmitted to the School.

6. Satisfactory progress toward degree

Satisfactory progress for MS (thesis option) students will be evaluated as follows:

- (a) Satisfactory completion of core coursework by the end of the second semester in residence
- (b) Satisfactory progress in research. Research performance will be evaluated by the advisor and includes initiation of research in the first semester of residence, submission of a thesis, and successful defense of the thesis, as well as any progress reports required by the advisor. The program should be completed in no more than six semesters.

Satisfactory progress for PhD students will be evaluated as follows:

- (a) Satisfactory performance in a qualifying examination. Normally, this will be completed by the 2nd semester of residence
- (b) Submission of a written thesis proposal and satisfactory oral defense of this proposal. This must be completed by the 6th semester of residence. Failure to do so will also result in an "unsatisfactory" grade for research.
- (c) Progress report to the Thesis Advisory Committee. This is generally completed during the 9th or 10th semester of residence. Failure to do so may also result in an "unsatisfactory" grade for research.
- (d) Presentation of research results at a seminar (grad symposium, conference presentation, departmental seminar) where at least one faculty member is present to assess the presentation.
- (e) Submission of an acceptable dissertation, and satisfactory oral defense of this dissertation. This should normally be completed in 12-15 semesters in residence

- (f) Satisfactory completion of specified courses, including courses in a minor area of study.

7. MS degree programs

The School of Chemical & Biomolecular Engineering offers programs of study leading to the degree of Master of Science (MS) in Chemical Engineering (thesis or non-thesis option), the Master of Science (MS) in Bioengineering, the Master of Science (MS) in Paper Science & Engineering, and the Master of Science (MS) in Polymers.

Students admitted to the thesis MS or PhD program who receive a stipend may not transfer into the non-thesis MS program

7.1 Degree requirements

The degree requirements for the MS degree in **Chemical Engineering (thesis option)** are as follows:

	<u>Credits</u>
ChBE 6003 Chemical Process Safety	1
ChBE 6100 Chemical Engineering Thermodynamics	3
ChBE 6200 Transport Phenomena: Momentum and Heat Transfer	3
ChBE 6260 Mass Transport	3
ChBE 6300 Kinetics and Reactor Design	3
ChBE 6500 Mathematical modeling of chemical processes	3
ChBE 6xxx Chemical Engineering Elective	3
Other Elective	3
ChBE 7000 Master's Thesis	9

TOTAL Credit Hours..... 31

It should be noted that:

- these courses are taught only once a year, generally in the Fall (ChBE 6003, 6100, 6260, 6300, 6500) and Spring (ChBE 6200) semesters
- the elective may be at the 4000 or higher level, and may not include special problem courses or courses required in the BSChBE curriculum
- all courses must be completed with a letter grade of A, B, or C.
- an overall GPA of 2.7 is required to graduate with a MS degree

The degree requirements for the MS degree in **Chemical Engineering (non-thesis option)** are as follows:

	<u>Credits</u>
ChBE 6003 Chemical Process Safety	1
ChBE 6100 Chemical Engineering Thermodynamics	3
ChBE 6200 Transport Phenomena: Momentum and Heat Transfer	3
ChBE 6260 Mass Transport	3
ChBE 6300 Kinetics and Reactor Design	3
ChBE 6500 Mathematical modeling of chemical processes	3
ChBE 6xxx Chemical Engineering Elective	3
Other Electives	12

TOTAL Credit Hours 31

It should be noted that:

- these courses are taught only once a year, generally in the Fall (ChBE 6003, 6100, 6260, 6300, 6500) and Spring (ChBE 6200) semesters
- electives may be at the 4000 or higher levels, with a maximum of 6 credits at the 4000 level. Electives may not include special problem courses or courses required in the BSChBE curriculum.
- all courses must be completed with a letter grade of A, B, or C.
- an overall GPA of 2.7 is required to graduate with a MS degree

The degree requirements for the MS degree in **Paper Science and Engineering** are as follows:

	<u>Credits</u>
ChBE 6003 Chemical Process Safety	1
ChBE 6100 Chemical Engineering Thermodynamics	3
ChBE 6200 Transport Phenomena: Momentum and Heat Transfer	3
ChBE 6260 Mass Transport	3
ChBE 6300 Kinetics and Reactor Design	3
ChBE 6630 Pulp and Paper Manufacture I	3
ChBE 6631 Pulp and Paper Manufacture II	3
ChBE 6231 Environmental Engineering for Forest Products	3
ChBE 6634 Wet-end processing of paper	3
ChBE 7000 Master's Thesis	9

TOTAL Credit Hours 34

It should be noted that:

- these courses are taught only once a year, generally in the Fall (ChBE 6003, 6100, 6260, 6300, 6630) and Spring (ChBE 6200, 6631, 6634) semesters
- all courses must be completed with a letter grade of A, B, or C.
- an overall GPA of 2.7 is required to graduate with a MS degree.

The degree requirements for the MS degrees in **Bioengineering and Polymers** are outlined on the websites of these programs. However, graduate students in the School of Chemical & Biomolecular Engineering in these degree programs must complete 12 credits from the following courses:

	<u>Credits</u>
ChBE 6100 Chemical Engineering Thermodynamics	3
ChBE 6200 Transport Phenomena: Momentum and Heat Transfer	3
ChBE 6260 Mass Transport	3
ChBE 6300 Kinetics and Reactor Design	3
ChBE 6500 Mathematical modeling of chemical processes	3

It should be noted that:

- these courses are taught only once a year, generally in the Fall (ChBE 6003, 6100, 6260, 6300, 6500) and Spring (ChBE 6200) semesters
- all courses must be completed with a letter grade of A, B, or C.
- an overall GPA of 2.7 is required to graduate with a MS degree.

7.2 The MS Thesis

A candidate for the MS degree (thesis option) must present a treatise setting forth the results of an investigation completed by the student under the direction of a member of the faculty of the School (the thesis or research advisor). The subject of the investigation will be assigned to the student during the first semester, after the student has familiarized himself/herself with the research programs in the School. After completion of the investigation, the student must also present an oral defense of the thesis as part of the requirement for the MS degree. **The oral presentation should generally be 30-45 minutes in length.**

Students must file with the Graduate Studies Committee and the Dean of Graduate Studies a formal request for approval of their MS Thesis Topic, naming the Thesis Reading Committee (or Thesis Advisory Committee), and setting forth the topic selected for research, the purpose of the investigation and the steps proposed to conduct it. This form must be filed with the Graduate Studies Committee by the end of the second semester in residence.

The MS Thesis Reading Committee should consist of at least three faculty members, including at least two from the School of Chemical & Biomolecular Engineering. At least two of the members should also be from the program faculty of the degree that the student is seeking (Chemical Engineering, Paper Science & Engineering, Bioengineering, or Polymers). A brief resume must be included for any non-Georgia Tech faculty member.

The format of the thesis is described in the **Manual for Graduate Thesis**, available from the Office of Graduate Studies. The thesis must be submitted to the Thesis Reading Committee **at least two weeks prior to the date of oral defense**. The MS thesis defense should involve the thesis advisor and Reading Committee. In addition, faculty and

students in the School must be notified at least 14 days in advance as to the date, time, and place where the defense is to take place. After the student has satisfactorily defended the thesis, and made final corrections in accordance with suggestions by the Committee, he/she must present a final version of the thesis to the Committee and to the Dean of Graduate Studies. This must be done at least three weeks before graduation. The final copy of the thesis must also be submitted to the Assistant Dean of the Graduate Division for approval at least 15 days before graduation. It is customary for the student to provide his/her Thesis Advisor with a complimentary bound copy of the thesis.

7.3 Program of Study

MS students are required to submit a proposed program of study form at the end of the second semester of study. The Associate Chair and the research advisor must approve the proposed program.

The approved program of study must be submitted to the Institute Graduate Studies Office no later than the last day of classes of the semester prior to that in which the student expects to graduate. Students whose programs are received later than this date will have their graduation delayed by one semester.

7.4 Transfer of credit

Institute policies permit the transfer of a maximum of 6 hours of graduate-level course work from another US institution to apply towards a Masters Degree. The student must file a petition with the Associate Chair accompanied by descriptive material such as transcripts, catalog descriptions and listings of textbooks used. The Georgia Tech equivalent for each course must also be provided. The student should discuss this petition with his/her thesis advisor before requesting that it be considered by the Associate Chair. This should be done during the first two semesters that the student is at Georgia Tech. More detailed information regarding transfer of credit is given in the General Catalog.

7.5 Degree petition

Degree candidates must file with the Registrar a Petition for Degree in the semester prior to that in which graduation is expected. Any errors in this petition may delay graduation until the following semester. Students who do not complete their requirements when anticipated must file a reactivation petition. This form is also due in the semester prior to the student's expected graduation date. Reactivation instructions may be obtained from the Office of the Registrar.

7.6 Summary of deadlines for MS candidates

First Semester:

- (a) Submit list of preferences for research project;
- (b) Selection of an advisor;
- (c) Petition for transfer credit.

Second Semester:

- (a) Submit Proposed Program of Study;
- (b) Select a Thesis Reading Committee;
- (c) Submit a Request for Approval of MS Thesis Topic.

Semester prior to graduation:

- (a) Submit Approved Program of Study;
- (b) Submit Petition for a Degree.

Final Semester:

- (a) Submit draft of thesis to Reading Committee **at least two weeks** prior to oral defense;
- (b) Schedule an oral defense of the thesis and submit a Notification of Thesis Defense to the School Graduate Office **at least two weeks** prior to defense;
- (c) Final version of the thesis must be submitted to the Graduate Division **at least three weeks before the date of graduation.**

8. Doctor of Philosophy Program

The Institute requirements for the Ph.D. degree are described in the General Catalog. The School of Chemical & Biomolecular Engineering requirements are as follows:

- (a) Satisfactory performance in a qualifying examination.
- (b) Submission of a written thesis proposal and satisfactory oral defense of this proposal.
- (c) Completion of (i) a committee review, generally 6-12 months before the thesis defense and (ii) a presentation in the graduate seminar series during the third or fourth year.
- (d) Submission of an acceptable dissertation, and satisfactory oral defense of this dissertation.
- (e) Satisfactory completion of core courses and 9 credit hours of courses in a minor area of study.

These requirements are discussed more fully below.

8.1 PhD Qualifying Examination

Students seeking a PhD degree in Chemical Engineering or Paper Science and Engineering, and having the School of Chemical & Biomolecular Engineering as an academic home, must pass the PhD qualifying examination given twice a year - once in January and again in May. Students entering in the Fall semester must take the examination offered during the following January; students entering in the Spring or Summer semesters must take the examination by the following January. If a student does not take the PhD qualifying exam during the normal time period, he/she must complete the MS degree requirements and take the qualifying examination at the first opportunity after defending the MS thesis. A student failing the written and/or oral component of the examination may retake the failed exam(s) once, the next time that the exam is given.

The qualifying exam will consist of four parts:

Part I- Written Exam: The written exam will be a three-hour closed-book exam covering material normally found in undergraduate chemical engineering curricula, including Material and Energy Balances, Thermodynamics, Fluid Mechanics, Heat Transfer, Mass Transfer, Separations, Reactor Design, and Chemical Kinetics and Catalysis.

Part II- Oral Exam: The oral exam will require the student to review and critique a technical paper which will be assigned to the student approximately one week before the exam. The student will be required to make a 15-minute oral presentation on the paper at a scheduled time and to a committee of two or more faculty members. This will be followed by a question and answer session lasting no more than 45 minutes covering the paper and other fundamental aspects of chemical engineering.

Part III- Research Evaluation: The research advisor will submit an evaluation of the student's research progress and potential, plus a letter grade evaluation of the student's research performance.

Part IV- Course Work: An average GPA of 3.0 is required in core courses (ChBE 6003, 6100, 6200, 6260, 6300, 6500) for students seeking a PhD in Chemical Engineering and (ChBE 6003, 6630, 6631, 6634, 6231) for students seeking a PhD in Paper Science and Engineering.

Overall Results: The overall recommendation from the faculty will be based on the student's performance in the four parts cited above. A separate exam is administered for students seeking a PhD in Bioengineering.

8.2 Thesis Proposal and Oral Defense

The thesis proposal must be presented in writing to the Thesis Advisory Committee and must include the following:

- objectives and specific aims of the research
- thorough but concise review of the relevant literature
- significance of the proposed work and its scientific and societal impact
- preliminary work
- outline of the proposed methodology, anticipated difficulties, and methods for overcoming these difficulties
- timetable for the completion of thesis

The proposal should be **between 10 and 20 pages in length (single spaced, 12 point font, 1 inch margins, including Figures and Tables). A one page abstract is also required, as well as appropriate references (not subject to the page limit).**

The proposal must be defended orally before the Thesis Advisory Committee, whose members must receive the written proposal no later than two weeks prior to the oral examination. The student must also circulate to the faculty (via the Graduate Office) an announcement of the time and place of the thesis proposal defense. This must be done at least two weeks before the date of the defense. **The examination will consist of a 20 minute oral presentation by the student,** followed by a question and answer session. The subject matter of the oral defense will be based on, but is not limited to, the research proposal.

The Thesis Advisory Committee will consist of the thesis advisor and at least four other faculty members with knowledge of the research area. At least three committee members must be faculty in the School of Chemical & Biomolecular Engineering, and at least one committee member must be from outside the School. The majority of members should also be program faculty (Chemical Engineering, Paper Science and Engineering, Bioengineering, or Polymers, as appropriate). A brief resume must be included for any member who is not a Georgia Tech faculty member. The Graduate Studies Committee must approve the Thesis Advisory Committee at least 30 days prior to the proposal date.

The thesis proposal defense must be completed **no later than the end of the sixth semester at Georgia Tech.**

The student must meet on a regular basis with the Thesis Advisory Committee (either as a group or individually) to report on his/her progress. A minimum of one progress meeting is required after the proposal defense and before the final thesis defense. The progress meeting must take place during the 9th or 10th semester of residence.

8.3 Admission to Candidacy

After successful completion of the qualifying exam and the proposal defense, the student must file with the Graduate Office a formal statement (Request for Admission to PhD Candidacy) naming the Thesis Advisor and Thesis Advisory Committee, and setting forth the topic selected for research. This statement should include the purpose of the investigation and the steps by which the student proposes to conduct it, supported by literature references where appropriate. The Associate Chair will then forward this request to the Dean of the Division of Graduate Studies for the applicant to be formally admitted to PhD candidacy.

8.4 Thesis Research

The thesis research must represent a significant contribution to fundamental knowledge in the field of Chemical & Biomolecular Engineering, and be publishable in a research journal in the field. The student and his/her thesis advisor will normally formulate the

thesis topic. The thesis advisor must be a member of the academic faculty of the School. In some cases, the student may conduct his/her thesis research under an advisor from another School. **In this case, the student must have a Chemical & Biomolecular Engineering faculty member as a thesis co-advisor.**

8.5 The PhD dissertation

Instructions concerning preparation of the dissertation are available from the Division of Graduate Studies and PhD candidates should familiarize themselves with these instructions. The format of the dissertation must be approved by the Division of Graduate Studies, and the student is required to submit a draft of the dissertation to the Graduate Division no later than three weeks before the date of graduation. This must be done after a successful thesis defense and after approval by the Thesis Reading Committee.

The student and his/her thesis advisor are expected to publish the completed research in appropriate journal(s) as promptly as possible.

8.6 Course requirements

PhD students in Chemical Engineering must successfully complete the following courses (or their equivalents) with an average GPA of 3.0 or higher:

ChBE 6003	Chemical Process Safety	1
ChBE 6100	Chemical Engineering Thermodynamics	3
ChBE 6200	Transport Phenomena	3
ChBE 6260	Mass Transport	3
ChBE 6300	Kinetics and Reactor Design	3
ChBE 6500	Mathematical Modeling	3
ChBE xxxx	ChBE Elective	3
	Courses in minor field of study (see below)	9

The ChBE elective is a 6000 level course in ChBE, separate from other degree requirements such as the minor.

PhD students in Paper Science and Engineering must successfully complete the following courses (or their equivalents) with an average GPA of 3.0 or higher:

ChBE 6003	Chemical Process Safety	
ChBE 6100	Chemical Engineering Thermodynamics	3
ChBE 6200	Transport Phenomena	3
ChBE 6260	Mass Transport	3
ChBE 6300	Kinetics and Reactor Design	3
ChBE 6630	Pulp and Paper Manufacture I	3
ChBE 6631	Pulp and Paper Manufacture II	3
ChBE 6231	Environmental Engineering for Forest Products	3
ChBE 6634	Wet-end processing of paper	3

Minor requirements: All students are required to demonstrate a mastery of some body of knowledge **outside their major**. This area of study is referred to as a minor program of study. The minor should consist of at least nine semester hours of work in related cohesive courses chosen in consultation with the thesis advisor. The courses should be offered by Schools other than Chemical & Biomolecular Engineering (cross-listed courses offered by the School are acceptable). The proposed minor program of study must be approved by the Graduate Studies Committee **before the courses are taken**. At least two of these courses must carry graduate credit, and one course may be at the 4000 level. All courses must be completed with a grade of B or better.

After completing the coursework for the minor, the student should complete the appropriate form and submit it to the Graduate Studies Committee setting forth the list of courses (and grades received) for the minor. The approved minor form will then be submitted to the Dean of Graduate Studies.

8.7 The 3rd/4th Year Requirements

Candidates for the PhD degree must complete a committee review between the Proposal Defense and the Thesis Defense. This review will usually occur 6-12 months before the Thesis Defense. The typical scope of the review will include a brief 10-15 minute presentation by the student of an outline for the completed PhD dissertation. A 3rd/4th year review form must be signed by the committee and returned to the graduate office.

Additionally, every 4th year student must present a seminar to the School as part of the Fall 4th Year Graduate Colloquium.

8.8 The degree petition

Candidates for the PhD degree must file with the Registrar a Petition for Degree in the semester prior to that in which graduation is expected. Any errors in this petition may delay the student's graduation until the following semester. Students who do not complete their requirements when anticipated must file a reactivation petition. This form is also due in the semester prior to the student's expected graduation date. Reactivation instructions may be obtained from the Office of the Registrar.

8.9 Final PhD examination

The thesis must be submitted to the Thesis Reading Committee **at least two weeks prior** to the date of the oral defense. In addition, the student must provide the School with an abstract, plus the date, time and place of the oral defense **two weeks prior** to the date of the defense. The examination will be conducted by the Thesis Reading Committee chosen by the student and the thesis advisor, and approved by the Graduate Studies Committee and the Dean of Graduate Studies. This committee will consist of at least five faculty members, including at least three from the School of Chemical Engineering and at least one from another School; the Thesis Advisory Committee members may also serve on the Thesis Reading Committee (or the examining committee). The examination will be announced throughout the School and will be open to the academic community. **The**

student will be required to make an oral presentation of the final thesis lasting 30-45 minutes, and this will be followed by a question and answer session.

The student must be registered during the semester in which the final doctoral examination is given.

If both the dissertation and examination are satisfactory, and there is compliance with requirements of residency and the minor field, then the candidate will be certified as qualified to receive the degree of Doctor of Philosophy.

8.10 Summary of deadlines for PhD students

1. *Admission to the Doctoral Program:* This occurs on admission to Graduate School or following satisfactory performance in the qualifying examinations.
2. *Request for Approval of Proposed Program of Study (including Minor Program):* No later than the end of the sixth semester of graduate study.
3. *Thesis Proposal Examination:* No later than the sixth semester of graduate study.
4. *Admission to Candidacy:* Upon completion of thesis proposal examination and approval of the thesis topic.
5. *Approval of Minor:* Coursework for the minor must be completed one semester before graduation. Students must petition the Graduate Studies Committee and Dean of Graduate Studies.
6. *3rd/4th Year Review:* Completed during the period between the Thesis Proposal Examination and the Thesis Defense, ideally no less than 3 months before graduation.
7. *Petition for Degree:* This must be submitted to the Registrar during the semester preceding the expected graduation date.
8. *Final Doctoral Examination:* The student must be registered during the semester in which the final examination is given. Dissertation approval form must be submitted following the examination. Copy of thesis must be submitted to the Reading Committee at least **two weeks** prior to oral defense. Final copy must be submitted to the Graduate Division at least 15 days before graduation date.

9. Graduate seminars

The Graduate Seminar courses, ChBE 8001-2, are designed to keep students informed of new developments in Chemical Engineering throughout the world. All graduate students must register for and attend seminars when in residence. Attendance at a minimum of 60 % of the seminars is required.

10. Preregistration for courses

Students are expected to pre-register each semester for the courses they intend to take during the next semester and for appropriate research hours.

All students should consult their thesis advisor before registration.

11. Multidisciplinary programs

The School of Chemical & Biomolecular Engineering participates in several multidisciplinary programs at the MS and PhD levels. Students who pursue these programs must meet the appropriate requirements. They should also consult with the advisor of the program before deciding on a proposed program of study.

Multidisciplinary Program

Advisor

Polymer Engineering; Plastics

Dr. A. Teja

Bioengineering

Dr. R. Butera

Computer Integrated Manufacturing Systems

Dr. M. J. Realff

Paper Science & Engineering

Dr. H. J. Empie

12 The academic year

Graduate students may take advantage of two weeks vacation and the ten University administrative holidays during each 12-month period of residency. Vacation and any special leave must be approved in advance by the thesis advisor.

13 Safety

Graduate students are required to familiarize themselves with the **Institute Fire and Life Safety Manual** and to abide by safety rules in the laboratory. Failure to follow safe

practices could result in dismissal from the program.

14 Computer facilities and computer use

Graduate students will be given accounts to access all computer facilities in the School, including the student computer lab. They are reminded that all computer use in the School is subject to the Institute “acceptable computer use” policies, which can be found at <http://www.itis.gatech.edu/policy/usage/>. In addition, the School computer lab policies can be found at <http://www.chbe.gatech.edu/computing/lab>.

15 Purchasing and Procurement

Purchase requests should be prepared with approval from the thesis advisor, indicating the estimated cost and **source of funds**. The request should then be forwarded to the appropriate administrative assistant for the faculty member. No student should make commitments for purchases directly with vendors.