

Biomedical Engineering Graduate Program

Student Handbook

UPDATED JANUARY 2015

2015-2016 University of New Mexico Biomedical Engineering Graduate Program Student Handbook

The biomedical engineering graduate program prepares students for careers in biomedical engineering - one of the fastest growing engineering fields and a key area of U.S. competitiveness around the globe today.

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1. Introduction

This handbook is to be used as a supplement to the UNM Graduate Catalog and Pathfinder (the UNM Student Handbook), and is intended to provide information specifically relevant to the BME department.

Graduate Catalog Link <http://www.unm.edu/~grad/catalog/catatoc.html>

Pathfinder Link <http://pathfinder.unm.edu/>

The Biomedical Engineering Program Coordinator and Program Director are available for discussion and clarification regarding any aspect of the program. Each student should receive and understand this catalog before the start of their first year in the graduate program. They are also expected to attend an advisement session at the start of each new semester.

Biomedical Engineering Contact Information:

- Prof. Heather Canavan; Director, BME Graduate Program: bme@unm.edu

The Office of Graduate Studies (OGS) website includes all necessary information pertinent to your graduate education. The OGS home page can be found at <http://www.unm.edu/~grad/>. Links to guidelines for graduate committee composition, exams and general degree requirements are listed at the OGS home page. OGS forms may be downloaded from <http://www.unm.edu/~grad/forms/forms.html>.

Students are responsible for knowing and following all OGS and BME policies and procedures. They are also expected to be aware of their academic standing at all times.

2. Admissions and Enrollment

2.1 Admission to the Graduate Program

Graduate Admissions: Domestic Students

Admissions Information and Criteria

Applications to the BME Graduate Programs are reviewed by an admissions committee. In their review of applications, the committee initially screens materials on the basis of the following criteria:

- 1) Bachelor's degree from a related science or engineering program in an accredited college or university. The degree must have been granted prior to the date on which you intend to enter the UNM graduate program.

- 2) An overall grade point average of 3.0 (on a 4 point scale).
- 3) A minimum total combined GRE score of 1100 on the old scale (250 on the new GRE scale; see http://www.ets.org/s/gre/pdf/concordance_information.pdf for conversion); and
- 4) Basic courses in physics, math, biology, and chemistry.

Admissions Process

Our online application will allow you to upload all your necessary documents for application to the program of your interest. Within the application, make sure to click the Application Instructions to see program specific requirements. Below is a checklist of items to complete:

- [UNM Application](#)
- A check or money order for the application fee, made out to the University of New Mexico. The application fee may be paid with a major credit card if you are applying online. Click here to [pay online](#).
- If the applicant uploads their transcript to the graduate online application only one official transcript needs to be sent to the Biomedical Engineering Graduate Program
- A letter of intent stating your reasons for pursuing a graduate degree, your research interests, your career objectives, general information on your technical and scientific experience, as well as a detailed explanation of special circumstances that might affect your admission. The letter of intent should state whether you desire financial aid in the form of a research or teaching assistantship.
- Three letters of recommendation. Uploaded to the pre-admission form or sent to the Biomedical Engineering Graduate Program using our [Letter of Recommendation Form](#) . [The form is currently on this webpage: http://bme.unm.edu/WCMS/common/docs/admissions/BME_Recommendation_Letter_Form.pdf] These letters should be professional (as opposed to personal or character) references, such as from colleagues, supervisors, or former instructors.

GRE scores

The BME Graduate Program requires GRE scores as well as TOEFL or IELTS scores to be submitted as part of the application. The GRE Institution Code is: 4845.

Grades

Although each application is reviewed individually, it is expected that the applicant will have maintained a 3.0 or better average in the last two years (or the last 65 semester credit hours, if on a part-time basis) of study and in his or her major field. This is a graduate school requirement that can be waived in extenuating circumstances, particularly for returning students. Grades in technical disciplines, particularly mathematics, computer science, physics, and engineering, are considered

especially important, as are language skills; also, recent grades are weighed more heavily than older ones. Industrial experience with favorable recommendations will be well received.

Deadlines

Fall Semester Application Deadlines

Priority for admission and consideration for financial aid will be given to applications received by January 15. International applications will be accepted until May 1.

Spring Semester Application Deadlines

Priority for admission and consideration for financial aid will be given to applications received by August 1. International applications will be accepted until October 1.

If an application is approved by the Committee, he or she will be accepted into the program, contingent upon acceptance into the UNM Graduate School. Financial support, and advising by a member of the BME faculty is a separate process from admissions. Applicants are encouraged to contact prospective faculty sponsors as early as possible to discuss their application. Information regarding faculty and their interests can be obtained from the application packet available from the BME website (<http://bme.unm.edu/faculty-staff>).

2.2 Application Deadline

Applications can be submitted at any time, and are reviewed throughout the year. The priority deadlines for domestic students seeking funding are January 15 for Fall admission, and July 15 for Spring admission. The final deadline for domestic students seeking funding is July 15 for Fall admission, and November 10 for Spring admission. The deadlines for International students are available on the UNM Global Education Office website (<http://geo.unm.edu/>). Currently, these dates are March 1 for Fall and August 1 for Spring.

2.3 Application Process

As of spring 2014, applications to all UNM graduate programs are electronic. **No application materials will be accepted by courier, US postal mail, or hand-delivery for the BME graduate program, including reference letters.** As applications cannot be edited once submitted, students are advised to ensure that all of their application materials (including reference letters and test scores) have been submitted prior to finishing their application submission.

Our online application will allow you to upload all your necessary documents for application to the program of your interest. Within the application, make sure to click the Application Instructions to see program specific requirements. Below is a checklist of items to complete:

- [UNM Application](#)
- A check or money order for the application fee, made out to the University of New Mexico. The application fee may be paid with a major credit card if you are applying online. Click here to [pay online](#).
- If the applicant uploads their transcript to the graduate online application only one official transcript needs to be sent to the Biomedical Engineering Graduate Program
- A letter of intent stating your reasons for pursuing a graduate degree, your research interests, your career objectives, general information on your technical and scientific experience, as well as a detailed explanation of special circumstances that might affect your admission. The letter of intent should state whether you desire financial aid in the form of a research or teaching assistantship.
- Three letters of recommendation. Uploaded to the pre-admission form or sent to the Biomedical Engineering Graduate Program using our [Letter of Recommendation Form](#) . These letters should be professional (as opposed to personal or character) references, such as from colleagues, supervisors, or former instructors.
- For International students, have TOEFL scores sent to UNM (UNM TOEFL code is 4845) and include a signed Certificate of Financial Responsibility. Please Note: After admission, the I-20 will not be issued until the Office of International Admissions receives your Certificate of Financial Responsibility and a \$50 non-refundable Application Fee.

For admissions criteria to UNM for international and domestic students, visit:

<http://grad.unm.edu/prospective-students/admissions-criteria.html>. The application website is at: <http://grad.unm.edu/prospective-students/apply-now.html>. Students applying for this program will select either the *Ph.D. In Engineering With A Concentration In Biomedical Engineering*, or the *Master's of Science in Biomedical Engineering*.

Upon completing and submitting your application, send an email to the BME Graduate Program Director (bme@unm.edu) informing them of your application. **Incomplete applications (missing GRE General Test scores, TOEFL scores for international applicants, reference letters, transcripts, etc.) will not be reviewed.**

In their review of applications, the Graduate Student Selection Committee initially screens materials on the basis of the following minimum criteria:

- 1) Bachelor's degree from a related science or engineering program in an accredited college or university. The degree must have been granted prior to the date on which you intend to enter the UNM graduate program.
- 2) An overall grade point average of 3.0 (on a 4 point scale).
- 3) A minimum total combined GRE aptitude score of 250 (for exams taken after Aug 1 2011) or 1100 (for exams taken before Aug 1 2011); and
- 4) Basic courses in physics, math, biology, and chemistry are essential.

2.4 Deferred Enrollment

Students admitted for the fall semester can ask permission to defer enrollment if they have a good reason for not beginning their studies immediately. Students wishing to defer enrollment must notify the department in writing. This request must also be approved by the Office of Graduate Studies. A deferral is limited to a period within one calendar year. If that limit is exceeded, the student will have to re-apply for admission into the Biomedical Engineering graduate program.

2.5 Non-Degree Status

Students who may have missed the annual admission's deadline and who wish to begin their graduate studies as soon as possible may take "non-degree status" credit hours prior to seeking formal admission. Up to 12 hours of such credit may be applied to the student's degree requirements, assuming the student is eventually formally accepted into the graduate program.

3. Degree Programs

Graduate students in Biomedical Engineering may undertake one of three degree programs: MS Plan I, MS Plan II, or PhD. While it is possible to transfer from one program to another, a program can be planned more effectively if your decision is made at the outset of your studies.

3.1 MS

Two alternatives exist for obtaining a Master's degree in Biomedical Engineering. The MS Plan I program provides advanced training in Biomedical Engineering that emphasizes research preparation. A combination of coursework and active research provides a program that develops an ability to conduct scientific research. This plan often leads to a PhD program, either at the University of New Mexico or another institution. A thesis or its equivalent is required.

The MS Plan II stresses advanced course work in Biomedical Engineering and may involve no active research by the student. No thesis is required and students generally take more course work than in the Plan I program. Plan II is most appropriate for individuals desiring an advanced degree in biomedical engineering, but who do not wish to pursue research in the graduate setting. Students whose career goals include substantial research or technical laboratory work, and those who intend to pursue a PhD degree at UNM, are not recommended to pursue this option.

3.2 PhD

The emphasis of the PhD degree is advanced training in the subject matter of Biomedical Engineering, and demonstration of the ability to design and implement significant independent research at an advanced level. The degree program is designed to develop both scholarship and technical expertise as the foundations for continuing scientific activity and contributions.

While some students enter the PhD program after obtaining a Master's degree, it is often preferable to design a program for the PhD that bypasses the MS degree. You should confer with your prospective

Major Advisor or a member of the Biomedical Engineering Graduate Faculty before you begin your graduate studies if you are at all uncertain about which program is most appropriate for your goals.

3.3 Program Changes

3.3.1 Dual Degree Program

Students in dual degree programs must complete both degrees in the same semester. Students must adhere to the general degree requirements. For detailed information, refer to the graduate section of the UNM catalog.

3.3.2 Changing Degree Programs

Students who are originally admitted into the Master's program and then decide to pursue a PhD degree, you must notify the Biomedical Engineering program office of your intention. This decision may not be made unilaterally by the student and his/her Committee on Studies. You will be evaluated, along with other applicants during the normal screening period. Students who wish to make this change must first reapply to the university.

After starting a PhD program, you may decide instead to pursue a MS degree. A change from PhD to an MS degree can be made with the approval of the Committee on Studies. Again, students may need to change their official status with the university.

4. Program Milestones

It is the responsibility of the student to ensure that all forms are completed and submitted on time, with the appropriate signatures. All the forms mentioned in the following schedule are available from the Department's Graduate Program Specialist, from the Office of Graduate Studies.

YEAR 1 MILESTONES

PhD Program

- Identify the Emphasis Area in which you want your degree. Currently there are two Emphasis Areas within the BME program:
 - **Molecular and Cellular Systems**
 - **Biomaterials, Biomechanics, and Tissue Engineering**

These Emphasis Areas will determine which core classes you need in addition to the BME core.

- Complete all required core courses as defined by the curriculum at time of entry into the program. At the current time, the following are required for all BME students:
 - BME Research Practices
 - Methods of Analysis

- BME Seminar

The core for each Emphasis Area is listed in section 18.1

- Be in good academic standing with a cumulative GPA of greater than or equal to 3.0 and no grade less than B- (core curriculum and electives)
- Identify a Dissertation Advisor.
- Choose dissertation project/gather preliminary data.
- **NOTE: STUDENTS MAY NOT TAKE DISSERTATION CREDIT BEFORE COMPLETING COMPREHENSIVE EXAM IN YEAR 3.**

Master's Program

- Complete all required core courses as defined by the curriculum at time of entry into the program. At the current time, the following are required for all BME students:
 - BME Research Practices
 - Methods of Analysis
 - BME Seminar

The core for each Emphasis Area is listed in Section 18.1

- Be in good academic standing with a cumulative GPA of greater than or equal to 3.0 and no grade less than B- (core curriculum and electives).
- Arrange for Thesis or Project Advisor, and set up Committee on Studies (COS).
- For Plan I students only: Submit Research Proposal; begin pursuing research.
- Make formal Program of Studies with the Biomedical Engineering Department and the Office of Graduate Studies, after completing 12 hours of graduate course work. The Program of Studies Form should list all course work to be counted toward the degree.

YEAR 2 MILESTONES

PhD Program

- Complete required elective courses (and core, if necessary) for chosen emphasis area. Current electives are summarized in Section 18.2 and will be updated on the website <http://bme.unm.edu>.
- Take the BME Qualifying Exam
- **NOTE: STUDENTS MAY NOT TAKE DISSERTATION CREDIT BEFORE COMPLETING COMPREHENSIVE EXAM IN YEAR 3.**

Masters Program

- Fulfill remaining course requirements.

- **Plan I students:** Write thesis, using the current OGS guidelines to correctly prepare the thesis and fill out all required paperwork. (See <http://grad.unm.edu/degree-completion/thesis-dissertations/guidelines.html>). Take Master's Examination.
- **Plan II Students:** Take Master's Examination.
- **Both:** Notify the Program Coordinator and the Office of Graduate Studies of your intent to graduate using the Intent to Graduate Form.

If you decide, with the approval of your Committee of Studies, to change from Plan I to Plan II, or vice versa, and you have already had your Program of Studies approved by the Dean of Graduate Studies, you need to submit an entire new Program of Studies for approval.

IMPORTANT DATES

- Notify the Office of Graduate Studies of date, time and place of Master's Exam at least 2 weeks prior to exam.
- Master's Exam results should be submitted to the Office of Graduate Studies no later than November 15 (Fall), April 15 (Spring), or July 15 (Summer).
- Submit two perfect copies of the approved thesis (Plan I students) to the Office of Graduate Studies no later than November 15 (Fall), April 15 (Spring), or July 15 (Summer). Submit one copy of the thesis to the Biomedical Engineering Department for its collection.

YEAR 3 MILESTONES

PhD Program

- Schedule Comprehensive Examination (Doctoral Dissertation Proposal) in the Spring semester of the third year.
- Notify the Office of Graduate Studies of date, time and place of Doctoral Comprehensive Exam (using Announcement of Examination).
- Form Dissertation Committee. See UNM Graduate Catalog for requirements on Dissertation Committees.
- Complete the Application for Candidacy form.
- Students may begin signing up for Dissertation credit hours (699) in the semester they take the Comprehensive Examination

Master's Program

- No modification for continuing students. Students must fulfill requirements pertaining to Year 1 & 2.

YEARS 4 & 5 MILESTONES

PhD Program

- Continue to enroll in dissertation credit (699). A minimum of 18 hours of 699 credit is required for the PhD.
- It is recommended that students meet with his or her Dissertation Committee to review their progress, and compare it to the work proposed in the Comprehensive Exam (and amend it, if necessary).

FINAL YEAR MILESTONES

PhD Program

- Write dissertation.
- Complete the “Intent to Graduate” form, and submit it to the BME Program Director for the required signatures. After the BME Program Director signs the form, it is submitted to the BME Program Coordinator.
 - The deadlines for OGS to receive this notification are:
 - October 1 for Fall semester
 - March 1 for Spring semester
 - July 1 for Summer semester
- Complete “Announcement of Final Examination for Doctorate” form, and submit to the BME office for the required signatures at least three weeks prior to the dissertation defense.
- Schedule the dissertation defense with the committee well in advance of the exam. Provide electronic and printed versions of the dissertation for the committee at least 10 days in advance.
- Defense of Dissertation. The Announcement/Report of Final Examination Form, Certification of Final Form for Manuscript, Report on Dissertation form, etc., are all available from the OGS website. The presentation of the dissertation research is open to the public, followed by a closed defense of dissertation session (open to only the dissertation committee).
- Following the defense, submit the “Report of Final Examination” form to the BME office for the required signatures.
- Following approval of the oral defense and dissertation document, submit dissertation according to the rules and policies of OGS.
- Graduation is dependent upon the completion of all degree requirements for graduation by:
 - November 15 for Fall semester
 - April 15 for Spring semester

July 15 for Summer semester

- Results of the Dissertation Defense should be submitted no later than November 15 (Fall), April 15 (Spring), or July 15 (Summer).
- Submit two final copies of the approved Dissertation, each with an abstract, to the Office of Graduate Studies no later than November 15 (Fall), April 15 (Spring), or July 15 (Summer). Submit one copy of the dissertation to the BME Department for its collection.

All of the forms mentioned above require a variety of departmental and non-departmental signatures. Please complete all the forms required, obtain all the necessary signatures, except for the Department Chair's signature, and submit the forms to the department for further processing.

5. Advisors and Graduate Committees

5.1 Advisor

The Advisor plays a key role in fostering your progress as a developing scientist; he or she is responsible for guiding your plan of study and course work, for seeing that you progress toward degree requirements in a timely fashion, for helping to assemble your Committee on Studies, and, most importantly, for working closely with you in your graduate research. The bonds you form with your major professor during your graduate studies are often firm and lasting, and are founded upon a close, professional working relationship. Accordingly, you should select an Advisor with care. Advisors must be tenured or tenure-track members of the Biomedical Engineering Graduate Faculty.

Thesis or Dissertation Committee

The MS and PhD examinations are administered a committee of the student's choosing, after consultation with his or her advisor. The PhD dissertation is reviewed by a Dissertation Committee, which must include at least four members. The MS thesis is reviewed by a Masters Committee, which must include at least three members. The requirements for the committee members is listed on the OGS website (e.g., <http://grad.unm.edu/resources/gs-forms/dissertation-committee.html>). All committee members must be present at dissertation defense or by teleconference if needed.

6. General Academic Regulations

You should confer with your Advisor or the BME Graduate Advisor before registering for each semester. This provides an opportunity to assess your academic progress, to change courses required on your degree program, if needed, and to maintain contact with your Advisor. UNM follows a pre-registration procedure in which students who are currently enrolled receive registration materials for the next semester from the Office of Admissions and Records prior to the last month of the current semester. If you do not receive these materials, you should contact that office. Returning students who have not pre-registered may register using the UNM I-TEL system. You should make every effort to pre-

register or register on time. A late-registration fee is assessed if you fail to register at the scheduled time. You may not register in graduate courses later than the end of the second week of a regular semester, or the end of the first week of a summer session, without the approval of the instructor(s) and the Dean of Arts & Sciences. If you hold an appointment that grants a tuition waiver, you must register for a full load (12 credit hours) each semester. This may be done by adding hours of BME 551 (Problems), 599 (Master's Thesis), 651 (Research), or 699 (Dissertation), as appropriate.

6.1 Semester Course Loads

In general, a graduate student enrolling for and completing a minimum of 9 graduate credit hours per semester is considered to be a full-time student at UNM. However, if you are holding a teaching assistantship, the minimum course load is 6 graduate credit hours per semester. Because the timely completion of class requirements greatly affects time to degree, most students take 12 credit hours per semester.

6.2 Registering for Classes

All students register for classes via the Internet or the telephone (246-2020). To use the internet registration system you must access [LoboWeb](#). For more instructions and help using LoboWeb visit the Registrar's website at registrar.unm.edu. Registration can be completed through MyUNM at my.unm.edu. Prior to registering for classes you will need to obtain your UNM NetID and password.

6.3 Grades

To earn a graduate degree at the University of New Mexico, students must have a minimum cumulative grade point average of 3.0 in graduate-level courses taken in graduate status at the time of degree completion, as well as a grade point average of at least 3.0 for courses listed in their Program of Studies or Application for Candidacy.

Students may not graduate with "I" or Incompletes pending in any graduate course, nor may they graduate while on probation.

Courses taken to meet undergraduate deficiencies/prerequisites cannot be used to meet graduate degree requirements nor are they calculated into the graduate grade point average. It is expected that the student earn at least a B (3.0) in each of these courses. If a grade of less than B (3.0) is earned in any of these, the major department may deem that the prerequisite has not been satisfied.

No more than 6 credit hours of course work in which a C (2.0), C+ (2.33), or CR was earned may be credited toward a graduate degree.

6.4 Grade Point Average

The Office of Graduate Studies checks the student's grade point average at the end of every semester and summer session for as long as the student is in graduate status. All students whose academic standing is deficient after receiving grades for 12 attempted semester hours or two semesters,

whichever comes first, are placed on probation or suspended, according to the university regulations and those of their graduate unit (see Catalog section on Probation).

The grade point average is calculated using all grades earned in graduate course work while a student is in graduate status. Grades earned at other institutions or in non-degree status are not calculated in a graduate student's grade point average. The University of New Mexico extension courses (those offered by the Extended University) taken prior to admission to a graduate program are not included in the graduate cumulative grade point average; however, The University of New Mexico graduate extension courses taken while a student is in graduate status are included.

The grade point average is calculated by dividing the total number of grade points earned (see Catalog section on Grades) by the total number of course work hours taken. Grades of CR, W, NC and PR are excluded from the cumulative grade point average calculation. Grades of W or NC, may have an adverse impact on a student's academic standing, financial aid, and assistantship eligibility.

In computing the cumulative grade point average, the OGS will internally calculate a grade of Incomplete as earning two grade points per credit hour the subsequent semester in which the "I" is assigned. No action will be taken unless the student's grade point average falls below 3.0 as a result of this internal calculation. In such instances, the student will be placed on Type 3 probation (see UNM Catalog section on Probation) until the Incomplete is resolved or other grades are earned which raise the cumulative grade point average. In the event that the student does not resolve the Incomplete or does not follow established procedures to extend the time for completion, the final grade in the course will be recorded as an IF and calculated as an F.

6.5 Change of Grade/Academic Record

The instructor of a course has the responsibility for any grade reported. Once a grade has been reported to the Office of the Registrar, only the instructor who issued the original grade (Instructor of Record) may submit a change by submitting a grade change form to Records and Registration in the Office of the Registrar. The student's department chairperson and/or college dean and the Dean of Graduate Studies must approve any change of grade submitted more than 30 days after the end of a semester. Any change in grade must be reported within 12 months after the original grade was issued.

6.6 Academic Probation and Consequences

Students who do not maintain good academic standing will be placed on academic probation by the Office of Graduate Studies. There are three types of probation.

1.1.1 Type 1: Grade Point Average

A student whose cumulative grade point average falls below 3.0 for grades earned in graduate-level courses taken while in graduate status will be placed on Type 1 academic probation. The student will be suspended from graduate status if the cumulative grade point average does not reach 3.0 after completion of an additional 12 semester hours of graduate course work or four regular semesters in

probationary status, whichever comes first. Students on Type 1 probation are not eligible to hold assistantships, nor are they allowed to take master's examinations, doctoral comprehensive examinations, defend theses or dissertations, or graduate.

1.1.2 Type 2: NC/F/W Grades

Students who earn any combination of two grades of NC and/or F in graduate courses taken in graduate status, even if their cumulative grade point average remains above 3.0, are placed on Type 2 academic probation. The student will be suspended from graduate status if a third NC or F, grade is earned. Students on Type 2 probation are not eligible to hold assistantships, nor are they allowed to take master's examinations, doctoral comprehensive examinations, defend theses, dissertations, or graduate. When students on Type 2 probation are ready to take final exams or defend theses or dissertations in order to complete graduation requirements, they must petition the Dean of Graduate Studies to end their probationary status so that they may complete their requirements and graduate.

1.1.3 Type 3: Incomplete Grades

A student whose cumulative grade point average drops below 3.0 due to the impact of Incomplete grades in graduate-level courses taken in graduate status (see previous section on Grade Point Average) will be placed on Type 3 academic probation. Type 3 probation will end as soon as the student completes the necessary work and is awarded a grade. However if the student fails to complete the necessary work, or if the final grade is low enough, the student may become subject to Type 1 or Type 2 probation. Students may not take master's examinations, doctoral comprehensive examinations, defend theses or dissertations, or graduate while on Type 3 probation. They may provisionally hold assistantships for one semester.

6.7 Suspension

1.1.4 By the Office of Graduate Studies

A student who is suspended from graduate status is removed from graduate student status at the University of New Mexico. A student may not apply for readmission to graduate status for one year after being suspended. The student may apply for admission to non-degree or undergraduate status at any time after being suspended from graduate status, but no class taken during the year in which the student is suspended from graduate status can be counted toward requirements for a graduate degree.

1.1.5 By a Degree Program

If, in the opinion of the graduate unit, a student shows little promise of completing the degree program or the student has committed an academic violation (e.g., plagiarism), the graduate unit will notify the student and the Dean of Graduate Studies in writing that the student is suspended from further work in that unit. Suspended students are not eligible to apply for readmission to any other graduate degree program for a period of one year from the effective date of the suspension.

1.1.6 Readmission after Suspension

If after a period of one year, a suspended student wishes to apply for readmission to a graduate unit, he/she must follow the readmission procedure delineated earlier in this catalog.

If a graduate unit decides to readmit the student, it will specify the conditions required by the student to re-establish his/her good standing. The period of suspension will be included in the time limit to complete the degree.

Students who have been suspended or who withdrew from the University while in probationary status will be placed in probationary status when readmitted to the University. Students suspended for low grade point average (Type 1 probation) will have 12 hours or four regular semesters (whichever comes first) to establish a grade point average of at least 3.0. A student who fails to achieve the minimum grade point average within the allotted time will be permanently suspended from their graduate program. Students who have been suspended for earning three grades of NC and/or F and subsequently readmitted will be permanently suspended from their degree program if a fourth grade of NC and/or F in graduate-level course work is earned.

7. Requirements for Master's Degree

To meet the formal requirements for the Master's degree, you must:

- 1) Successfully complete the course work requirements for Plan I or II with a cumulative GPA of at least 3.0;
- 2) Have a Program of Studies approved by the Graduate Dean no later than the semester prior to graduation;
- 3) Pass the Master's Examination and/or Master's Exam for Thesis;
- 4) Submit a research proposal under Plan I; and
- 5) Present and successfully defend a thesis acceptable to the Department and the Graduate Dean (Plan I only).

In either Plan I or Plan II, you and your Major Advisor may design a program of studies in which all work is done in the major department, in the major department and the minor department, or in the major department and one or more related departments.

The following provisions must also be observed:

- 1) Programs meeting the minimum requirements of Plan I or II do not automatically constitute a master's program. Each program must be approved by the Department and the Dean of Graduate Studies;

- 2) After the Program of Studies has been filed, minor changes between Plans I and II may be made only with the approval of the Department and the Dean of Graduate Studies. A new Program of Studies form must be filled out and approved if any major changes are made to a Program of Studies;
- 3) All work offered toward fulfillment of degree requirements must fall within a 7-year period;
- 4) If you opt for a formal minor as part of your program, 1) you should consult with a member of the minor department in the planning of that program; and 2) the Biomedical Engineering Department shall include a faculty member from the minor department on your Master's Examination Committee, unless this right is waived by the Chairperson of the minor department; and
- 5) For rules on transfer credits see the UNM Catalog.

7.1 MS Curriculum Requirements

1.1.7 Plan I

The minimum requirements for a thesis based M.S. include 6 hours of thesis credit (BME 599) and 24 hours of course work that must include 15 hours of core courses, as approved by the Committee on Studies, and at least 3 hours from the BME electives listed in section 18.2. Plan 1 automatically meets the requirements of at least 12 hours of coursework at the 500 level or higher, exclusive of thesis credit, as stipulated by the UNM Catalog.

Plan 1 students must consult with one or more faculty members prior to selection the topic of their research. Final selection of their topic must be approved by one or more faculty members who agree to mentor the student's research. The Thesis Committee must approve the topic before the student begins work.

Copies of a student's completed M.S. thesis must be provided to each Thesis Committee member. Once approved by the committee, the student must give an oral defense of the thesis in a presentation to the Thesis Committee to which other members of the university and general public have been invited.

1.1.8 Plan II

The minimum requirements for the Plan II course-based M.S. degree program include 32 hours of course work for credit, with at least 24 hours drawn from the list of BME required and elective courses. A maximum of 3 hours of the bioengineering seminar and 3 hours of any additional optional seminars may also be applied toward the 24 hours. At most, 6 hours of 400 SOE courses are allowed. Also, at least 12 hours of coursework should be at a 500 level or higher, as stipulated by the UNM catalog.

All students in the Plan II M.S. degree program must pass an Oral Examination. This examination is administered by the student's Committee on Studies. The purpose of the examination

is: (i) to determine the extent to which the student has attained knowledge of the subject matter of his or her BME courses; and (ii) to decide whether the student's knowledge meets a level appropriate to a Plan II master's degree in biomedical engineering. Subsequent to the Oral Examination, the student's Committee on Studies decides on a recommendation that is then forwarded to the BME Graduate Subcommittee. The Subcommittee makes a final pass/fail decision. Students are allowed no more than two attempts to pass the Oral Examination.

7.2 Program of Studies

A Program of Studies for the Master's Degree should be filed with the Dean of Graduate Studies after you have completed 12 hours of graduate work and no later than the last day of classes of the semester before you expect to complete degree requirements. (The total number of hours needed for the degree is to be listed on the candidacy form.) Tool skills must be completed and filed along with the Program of Studies.

This form may be obtained either from the Office of Graduate Studies (OGS), the OGS web site <http://www.unm.edu/~grad/forms/forms.html> or from the Biomedical Engineering Department Office. The Program of Study listed in the application should be planned in consultation with your Major Advisor; both your Advisor and the Department Chairperson must approve the form before it is submitted to the Dean of Graduate Studies. Approval of this form will be given only after 1) all undergraduate pre-requisites have been satisfied; 2) at least 12 hours of graduate credit have been completed with a B average or better.

7.3 Notification of Intent to Graduate

You need to officially inform the Biomedical Engineering Department and the Dean of Graduate Studies of your intention to complete all degree requirements during that semester (Fall, Spring or Summer, respectively) by completing the Intent to Graduate Form and submitting the form to the Biomedical Engineering Department no later than mid July for Fall semester), 1st week in December for Spring semester, last week in April for Summer semester. Degrees are awarded three times during the year.

7.4 Required Enrollment

Master's students electing either Plan I or Plan II must be enrolled for at least 1 graduate credit either in thesis (BME 599) for Plan I, or in project, problems (not to exceed 12 credit hours), or another graduate course for Plan II for the semester (including the summer session) in which they complete degree requirements.

7.5 Thesis

Each candidate for the Master's degree under Plan I must submit a thesis that gives evidence of capacity for sound research. The thesis must be approved by your Committee of at least three faculty members. The Thesis Director will serve as Chairperson of this Committee and assume the major responsibility for guiding the student's work.

A complete draft of the thesis should be submitted to your Committee well in advance of the anticipated graduation date. A one-page sheet of instructions is available from the UNM Bookstore; the thesis format is available also at the OGS web site <http://www.unm.edu/~grad/forms/forms.html>.

If you are following Plan I, you must complete a minimum of 6 hours of Thesis (599) credit. Having once registered for Thesis, you must then continue to register for a minimum of 1 hour of BME 599 during each regular semester (exclusive of summer, unless you plan on graduating during that semester) until the thesis is approved by the Graduate Dean. This rule applies whether or not you are enrolled for anything else. A thesis from a student who is not enrolled for the current semester is not acceptable.

Two copies of the typed/word-processed thesis, together with two copies of an 150-word abstract, all in perfect form and approved by your Committee, shall be submitted for the approval of the Dean of Graduate Studies by November 15, April 15, or July 15 for Fall, Spring or Summer, respectively. A third copy shall be given to the Biomedical Engineering Department for its collection.

7.6 Master's Examination

The Master's Examination and/or Master's Exam for Thesis must be passed by all candidates for the Master's degree. The examination, drawn from the major and minor or related fields as appropriate, may be written, oral, or both, at the option of the Committee on Studies; it is conducted by your Committee. The master's exam may be taken only after the Program of Studies has received approval.

The examination for the Master's degree will be conducted by a committee of three members approved for graduate instruction, at least two of whom must hold regular, full-time faculty appointments at UNM. The chair of the examination must be a regular faculty member. Non-regular faculty may serve as co-chairs.

Under Plan I, your Major Advisor usually serves as Chairperson of the Committee. The examination may be given only after the Program of Studies has been approved by the Graduate Dean; the student must be in good standing.

At least two weeks prior to the date of the Master's Examination and/or Master's Exam for Thesis, the student must notify the Biomedical Engineering Department and the Dean of Graduate Studies of the date, time and place of the examination. The Announcement/Report of Examination Form can be found on the OGS website, and must be submitted to the Department no later than November 1 (Fall), April 1 (Spring), or July 1 (Summer).

You must be notified of the results of the examination no later than two weeks from the date of examination. If your Committee anticipates being unable to meet this deadline, it must give you written notice to this effect prior to this examination; in this event, you must be notified of the results of the examination no later than three weeks from the date of the examination. The results of examinations taken between semesters or during the summer must be given no later than two weeks

after the first day of classes of the next regular semester. Results of the examination shall be provided to the Office of Graduate Studies by November 15 (Fall), April 15 (Spring), or July 15 (Summer). If a candidate fails the examination, a six-month interval should elapse before a second examination is given. A candidate may take this examination only twice. Failure to pass the second time will result in the student's termination from the graduate program.

7.7 Master's Snapshot

The following requirements must be met before a student's name can be submitted for graduation.

- The student must follow the **UNM Catalog** in place at the time of his/her admission, plus any additional departmental requirements.
- Master's students under Plan I must be continuously enrolled for 599 hours. Master's students under Plan II must have been enrolled within three semesters (including summer) of graduation.
- The student should check his/her academic record (LoboWeb) at the end of each term to ensure that his/her status, degree program, grades and GPA are correct and in compliance with **University policies**.
- The student must meet the **general degree requirements** published in the UNM Catalog.
- The student must submit a **Program of Studies (POS)** form, listing all the courses that apply to the degree. The **POS form** can be filed at any time after admission but must be filed no later than the term before the student intends to graduate. The specific deadlines* are as follows: March 1 for Summer graduation, July 1 for Fall graduation and October 1 for Spring graduation.
- The student must notify the degree program of his/her **intent to graduate** the term prior to the term of graduation. The student should confirm additional deadlines with his/her program.
- The student is required to pass a **master's examination and/or thesis defense**. The master's examination may be taken only after the Program of Studies has received approval by the Graduate Dean and only if the student is in good academic standing. The **Announcement/Report of Examination form** must be submitted to OGS a minimum of two weeks before the scheduled date of the examination. The student must be **enrolled** in the term the master's examination is taken.
- The student must satisfy degree requirements (passed master's exam and/or thesis submission) by the deadlines of July 15 for summer graduation, November 15 for Fall graduation, or April 15 for Spring graduation.
- The student who chooses Plan I/Thesis option must complete a minimum of 6 hours of **599/thesis**. Once a student begins enrollment in 599 s/he must enroll in 599 every term (summer term is

excluded, except if the student is graduating in the summer) until the manuscript is accepted by OGS.

- The student must meet all **thesis requirements**. Please refer to the **Graduation Checklist form**. The thesis must be submitted no later than 90 days after passing the thesis defense, or the term graduation deadline, whichever comes first. Manuscript formatting guidelines are available through **this link**.
- The student who misses the term graduation deadline, but completes degree requirements by the last day of that term may choose to follow the **Courtesy Policy**.

*NOTE: Deadlines that fall on a weekend or holiday are automatically moved to the end of the next business day.

8. Requirements for Doctorate

It is the responsibility of the student to ensure that all forms are completed and submitted on schedule, with the appropriate signatures. All the forms mentioned in the following schedule are available from the Department's Graduate Program Specialist.

To meet the formal requirements for the PhD degree, you must:

1. Successfully complete the course work requirements
2. Pass the qualifying exam
3. Pass the PhD comprehensive examination
4. Apply for and be admitted to doctoral candidacy
5. Submit a research proposal
6. Present and successfully defend a dissertation acceptable to the Department and the Graduate Dean

The requirements described below should be viewed only as a minimal formal context in which you are expected to grow in the professional stature represented by the doctoral degree.

8.1 Curriculum Requirements

1. A minimum of 48 hours of graduate credit course work (including core courses and electives), plus 18 credits of 699 (dissertation hours).
2. Must be enrolled in at least one hour of graduate credit in the semester in which the doctoral comprehensive examination is taken.
3. At least 24 hours of graduate credit course work must be completed at The University of New Mexico.

4. At least 18 hours of graduate credit course work must be completed after admission to the doctoral program at The University of New Mexico. The six remaining graduate credits to meet the 24 credit hours must be course work completed at UNM. The remaining credit hours to meet the 48 credit hour degree requirements can be applied from master's course work, courses taken as non-degree status at UNM, or transfer credits.
5. A minimum of 18 hours of graduate credit course work must be earned in The University of New Mexico courses numbered 500 or above.
6. No more than 50% of the required course credits at The University of New Mexico may be taken with a single faculty member. (Course work that has been completed for the master's degree is included in this limit.)
7. Must be enrolled the semester in which you complete degree requirements, including the summer session. If student has met the 18 credit hours of dissertation, the doctoral student must enroll with a minimum of 3 credit dissertation hours each semester.

8.2 Qualifying Exam

In their 2nd or 3rd year, BME graduate students in the PhD program are expected to complete the Qualifying Exam. The PhD Qualifying exam is the first of three oral examinations in the Biomedical Engineering PhD program. Students are eligible for to take the Qualifying Exam after they have finished the required BME core courses (usually after conclusion of their first year in the program). Students who have not yet finished their core courses, but are advanced in their research career (e.g., have already obtained an MS in another field), may elect to waive that requirement after discussing it with their PhD advisor. Although students must have identified a research advisor prior to the exam, they are not required to have formed their dissertation committee.

Goals of the Exam

The purpose of the QE is to ascertain if the student can formulate and communicate meritorious original research in the field of Biomedical Engineering. The exam has both written and oral components, and includes the review of one of three manuscripts, as well as the formulation of a proposal. More information is provided [here](#). The student is evaluated on their basic knowledge of the emphasis area they are enrolled in, their ability to effectively communicate their ideas and knowledge, their scientific originality, and their ability to effectively plan a small research project.

Orientation

Prior to taking the QE, students are required to attend an orientation with the BME Qualifying Exam Advisor. During the orientation, students will submit a memo with information about his or her undergraduate education, current degree program, and research advisor. See "Eligibility to Take the Oral Qualifying Exam in the BME Graduate Program" [here](#). During the orientation session, the QE Advisor will discuss the exam procedure and format in detail, and answer any questions from the students at that time.

Format

The QE consists of three parts:

1. A written research proposal based on an NIH graduate student award,
2. An oral critique of one of three recent manuscripts in 3 areas of Biomedical Engineering. These will be proposed a pool of faculty, from which a qualifying exam committee will be formed.
3. An oral presentation, including a question & answer session based on both of the preceding parts.

Each student's QE Committee consists of three faculty members. At the conclusion of the exam, each committee member will evaluate the student's performance according to a rubric. The performance of all students participating in the exam will be discussed at a faculty meeting, and all of the faculty will vote on its outcome. The students will then receive a memo with the conclusions of the exam's outcome, as well as any recommendations.

Timeline

The BME QE is held twice each academic year, typically the week prior to the first day of the semester. The QE orientation session is held one month prior to the day of the exam. A more detailed checklist is found on the BME website.

8.3 Doctoral Comprehensive Examination

The Doctoral student must pass a written and oral comprehensive examination in the major field of study. The examination is not limited to the areas of your course work, but will test your grasp of the field as a whole. You must be in good academic standing to take these examinations. The comprehensive examination may be taken at any time; however, it must be prior to your Application for Candidacy. At least two weeks prior to the planned examinations, you must notify (by using a form available in the Department Office) the Dean of Graduate Studies of the date, time and place of the examinations.

The examinations are normally conducted by a Comprehensive Committee, chosen by the student in cooperation with his or her advisor, and such other persons as are appointed by the Department in consultation with the student and with the approval of the Graduate Dean. Because the Comprehensive is closely linked to what is expected for the Dissertation, the Comprehensive Committee is usually (but not always) retained as the Dissertation Committee.

You must be notified of the results of the examinations no later than two weeks from the date of the examinations. If your committee anticipates having difficulty in meeting this deadline, you must be given written notice to this effect prior to the examinations; in this event, you must be notified of the results of the examinations no later than three weeks after the first day of classes of the next regular semester.

Results of the examinations shall be reported to the Dean of Graduate Studies on the form provided. If a student fails the examinations, the Committee on Studies shall make an appropriate recommendation to the Dean of Graduate Studies regarding a possible re-examination, which must be administered within one year from the date of the last exam. Failure to pass the second time will result in the student's termination from the graduate program.

8.4 Dissertation Hours

OGS requires a minimum of 18 hours of Dissertation (BME 699) credit to complete your Doctorate. You should consult with your Major Advisor concerning the time of the initial enrollment and the number of BME 699 hours to be carried each semester, 12 hours being the maximum. You may not be enrolled in 699 prior to the semester in which you take your comprehensive examination. If you fail to complete the comprehensive examination in the semester of the initial 699 registration, you will receive a "W" for 699 for that semester. **Dissertation hours cannot be taken before completion of the comprehensive exam; research prior to completion of the comprehensive exam can receive credit by registering for a "Problems" course (BME 551).**

Having once registered for Dissertation credits, you must continue to register for 699 during each regular semester (exclusive of Summer) until the dissertation is approved by the Graduate Dean. All students registered for Dissertation (699) must enroll for 3-9 hours/semester, the number of hours to

be determined by consultation with your Major Advisor. The maximum in the Summer Session is 9 hours.

After completing 18 hours of Dissertation enrollment, you may meet the continuous enrollment requirement by enrolling for 3 hours of 699. The Dean of Graduate Studies will not accept a dissertation from a student who is not enrolled for the current semester.

8.5 Candidacy

The Doctoral student applies for candidacy once s/he has passed their comprehensive exam. The Application for Candidacy is the vehicle that formally summarizes your program of studies.

It is mandatory that all the following requirements be successfully met before you file the Application for Candidacy form. Those requirements include the required core course work, Qualifying Exam, and Comprehensive Examination. The student cannot advance to candidacy until these requirements are successfully completed.

Courses selected to satisfy this requirement will, of course, also count to satisfy the total number of credit hours accumulated for the degree.

Application for Candidacy forms are available at the Office of Graduate Studies, or the OGS website. The form must be approved by the Committee on Studies and returned to the Graduate Program Coordinator for further processing.

8.6 Five Year Limit

As a general rule, all work offered toward the requirements for the Doctorate must fall within a five-year period after successful completion of the doctoral comprehensive examination. Candidates who have interrupted their graduate education for professional work in their field will generally be granted an extension of the time limit, but a petition must be filed. Any request for an extension of the limit for this or other reasons must be originated by the student, supported by the Department, and addressed to the Graduate Dean.

Note that the period of the department's obligation of financial support to PhD students is the first five years (10 semesters) of their period of graduate study.

8.7 Doctoral Final Examination (Defense)

All candidates must pass a final examination dealing primarily with the dissertation and its relationship to the candidate's major field.

At least two weeks before the date set for the final examination, you should notify the Dean of Graduate Studies of the date, time and place of the defense. The examination is chaired by your

Advisor. A complete copy of the dissertation must be submitted to each member of the Dissertation Committee at least two weeks before the defense.

At the conclusion of the examination, the members of the Dissertation Committee shall confer and vote their recommendations, which must be agreed upon by at least three of the four members. The Committee may 1) recommend that the dissertation be approved without change; 2) recommend that the dissertation be approved subject only to minor editorial corrections, or 3) require that the dissertation be revised before approval. In the case of 1) and 2), no further meeting of the Committee will be needed, although in/ the case of 2) the Advisor will be responsible for seeing that the corrections are made before the dissertation goes to the Office of Graduate Studies. In the case of 3), the full Committee will decide that their stipulations have been met.

A portion of the final examination must consist of a formal, 50-minute oral presentation open to the general public. Formal announcement of this event should be made at least one week in advance of the presentation using the normal format that is used by the Department for regularly invited seminar speakers. After the seminar, the candidate and the Dissertation Committee will meet privately to continue the examination. Each reader of the dissertation must fill out an evaluation form, and the Chairperson of the Dissertation Committee must, in addition, fill out a Certification of Final Form for Manuscript, which needs to be turned in to the Office of Graduate Studies immediately after the defense. These forms are available from the OGS web site <http://www.unm.edu/~grad/forms/forms.html>.

8.8 PhD Dissertation

All doctoral students are required to prepare dissertation, as part of the fulfillment of the degree requirements. There are two acceptable, alternative formats for the thesis or dissertation: the traditional and the manuscript-based. The latter is often referred to in the Department as a "hybrid" thesis or dissertation. Students may opt to use either style. However, approval of which style is used will be obtained from their major professor and the members of their examination or dissertation committee prior to preparing the thesis or dissertation.

For either style, the rules and regulations established by the Office of Graduate Studies (OGS) regarding format (Front Matter, Text, Reference Matter, paper dimensions, margins, etc.) must be adhered to. The OGS guidelines are available at <http://www.unm.edu/~grad/forms/forms.html>.

Traditional Thesis or Dissertation

The traditional thesis or dissertation is a single manuscript, authored solely by the student, presenting original research performed by the student. The text section is typically subdivided into: Introduction, Materials and Methods, Results, Discussion, References, and Appendices (optional).

8.9 Manuscript-based Thesis or Dissertation

A manuscript-based thesis or dissertation is a collection of manuscripts or articles formatted for publication and presented as separate chapters of a single thesis or dissertation. This style must satisfy the following guidelines:

1. The articles or manuscripts must report original research that is primarily the student's or to which the student contributed significantly. The student must be the first author on at least one of the manuscripts in their thesis or dissertation. The inclusion of a particular manuscript in the thesis or dissertation will be with the approval of the student's advisor and the members of the examination committee.
2. The manuscripts must be articles published in a peer-reviewed national or international journal and/or manuscripts prepared for publication in a peer-reviewed national or international journal. This guideline allows for a single thesis or dissertation to consist of a mixture of published and unpublished material.
3. The chapters may be in the format style for the journal to which they are intended. However, the student's advisor and the members of the examination committee have the option to require re-formatting of chapters to a single uniform style.
4. The names of all co-authors on multi-authored manuscripts will be included. If one or more of the manuscripts are already published at the time the thesis or dissertation is submitted, the article's citation will be provided at the beginning of each chapter.
5. Students should consult OGS regulations regarding issues related to copyright. Students are responsible for obtaining permission to use a published, copyrighted manuscript in their thesis or dissertation from the journal in which the paper is published. Students are advised to consult the policies of the journal regarding release of copyright for use in theses and dissertations. Many journals openly state in their policies and guides to authors that published manuscripts may be used for theses and dissertations without obtaining additional permission.
6. The completed thesis or dissertation will contain:
 - a. An abstract that collectively summarizes the individual manuscripts or chapters;
 - b. A general introduction that lists the individual manuscripts and describes how each chapter or manuscript relates to a general theme of the thesis or dissertation is recommended. The student should seek the advice of their faculty mentor and members of their thesis examination or dissertation defense committee on the content of the introduction.

- c. The articles or manuscripts as separate chapters;
- d. A conclusion or summary that provides an overview of the collective findings reported in the separate chapters is recommended at the discretion of the committee;
- e. An optional appendix containing any additional material that will not be submitted for publication may be included or a literature review section, as appropriate.

8.10 Doctoral Snapshot

The following requirements must be met before a student's name can be submitted for graduation.

- For all graduate students, no student may not graduate with an Incomplete grade. Grades must be posted by the end of the semester. A copy of the grade change should be sent to the Graduation Coordinator at OGS as soon as the grade is posted.
- The student must follow the [UNM Catalog](#) in place at the time of his/her admission, plus any additional departmental requirements.
- The student should check his/her academic record (LoboWeb) at the end of each term to ensure that his/her status, degree program, grades and GPA are correct and in compliance with [University policies](#).
- The student must meet the [general degree requirements](#) published in the UNM Catalog.

The student is required to pass a [doctoral Comprehensive Examination](#). The [Announcement/Report of Examination form](#) must be submitted to OGS a minimum of two weeks before the scheduled date of the examination. The student must be enrolled and complete a minimum of one hour of graduate credit in the term s/he takes the comprehensive examination and must be in good academic standing. Students **may not** take the exam if three or more semesters have elapsed since their last enrollment. The Report of Examination form must be turned in by November 15th for Fall Graduation, April 15th for Spring Graduation, and July 15th for Summer Graduation.

- The student must submit an [Application for Candidacy \(AC\)](#) listing all the courses that apply to the degree. The [AC form](#) should be filed the term the student passes the comprehensive examination and no later than the last day of the term before the student intends to graduate.

- The [Application for Candidacy \(AC\)](#) form should be forwarded to OGS during the semester in which the student has both passed the comprehensive examination and completed any required language or research skill. It should be accompanied by the [Report of Examination and Certification of Language Skill Requirement](#) forms.
- The student must submit an [Appointment of Dissertation Committee form](#) within the first term of [dissertation \(699\) enrollment](#)
- The student is [Advanced to Candidacy](#) (All but dissertation [ABD]) by the Dean of Graduate Studies in the term when all the following criteria have been met:
 1. The doctoral comprehensive examination has been passed;
 2. OGS has approved the Application for Candidacy;
 3. Language/skill requirement (if appropriate) is satisfied; and
 4. OGS has approved the Appointment of Dissertation Committee form.
- The student must notify the degree program of his/her [intent to graduate](#) the term prior to the term of graduation. The student should confirm additional deadlines with his/her program.
- The student must defend his/her dissertation. An [Announcement/Report of Examination form](#) must be submitted two weeks prior to the dissertation defense date. The dissertation must be submitted no later than 90 days after passing the dissertation defense, or the term graduation deadline, whichever comes first.
- The student must satisfy degree requirements (defended and submitted dissertation) by the deadlines of July 15 for summer graduation, November 15 for Fall graduation, or April 15 for Spring graduation.
- The student must complete a minimum of 18 hours of [dissertation/699](#). Once a student begins enrollment in 699 s/he must enroll in 699 every term (summer term is excluded, except if the student is graduating in the summer) until the manuscript is accepted by OGS.
- The student must meet all [dissertation requirements](#). Please refer the [Graduation Checklist form](#). The dissertation must be submitted no later than 90 days after passing the dissertation defense, or the term graduation deadline, whichever comes first. Manuscript formatting guidelines are available through [this link](#).

1. The student who misses the term graduation deadline, but completes degree requirements by the last day of that term may choose to follow the [Courtesy Policy](#).

***NOTE:** Deadlines that fall on a weekend or holiday are automatically moved to the end of the next business day.

9. Evaluation of Progress

Your Committee on Studies is responsible for the evaluation of your progress toward a degree. A normal, timely completion of program course work and research (along with completion of the various Graduate School requirements) is considered satisfactory progress. The Committee on Studies must meet at least once a year and it must enter a brief progress report (form available from the department Graduate Program Specialist's office) into the student's departmental file.

10. Taking a Leave of Absence

Students may find themselves in circumstances that require them to withdraw temporarily from their graduate program. Under such circumstances, the student should request, in a carefully justified letter to the departmental chairperson, a leave of absence. The written request, together with a memo of support from the chairperson or designee of the graduate unit is forwarded to the Graduate Dean who will make the final decision. The time spent in a leave of absence will not count against a student's eligibility for departmental support.

Students should not take a leave of absence to undertake research work related to their degree. It is not, for example, permissible to take a leave of absence to work on a research grant related in any way to your degree program. PhD students who have passed their comprehensive exam and started enrollment in BME 699 (Dissertation) must maintain continuous enrollment in this course during their leave of absence.

In cases where the leave of absence becomes prolonged, and there is little hope of a student returning to finish his/her degree program, the chairperson may, in consultation with the student's Committee on Studies, terminate the student's relationship with the department.

11. Petition Procedures

Any policy of the Biomedical Engineering Department applying to graduate students that is not also a policy of the College of Arts & Sciences or other institutional body is open to petition for waiver or modification. Such a petition, however, should be made only under exceptional circumstances. The petition must be made by the advisor, must have been approved by the Committee of Studies, and must be made prior to admission to candidacy. In the case of core requirements, the petition must demonstrate that none of the core courses offered during the relevant two-year period where

appropriate and that the suggested substitution is. Granting the petition is solely at the discretion of the Graduate Policy Committee. Petitions will be entertained twice an academic year: once during the Fall semester and once during the Spring semester.

In the event of a disagreement between the Graduate Policy Committee and a student and/or the student's Advisor or Committee on Studies on the interpretation or implementation of departmental graduate policies, a decision may be appealed to the Chairperson of the Biomedical Engineering Department. The appeal should indicate the nature of the problem and the justification for the appeal. If either party involved wishes to dispute the Chairperson's decision, the disagreement may be appealed to a meeting of the Biomedical Engineering Department Faculty. Subsequent appeals must follow standard university procedures. University policy for the petition process is described in the Graduate Program section of the UNM Catalog.

12. Policy on Termination

A student may be terminated from graduate status for the following reasons:

1. Receiving three grades of NC and/or F;
2. Having a cumulative GPA of less than 3.0 for two consecutive, or three cumulative, enrollment periods (semesters); or
3. Failure to meet program requirements.

If, in the opinion of the Biomedical Engineering Department, a student shows little promise of completing the degree program, the Department will notify the Dean of Graduate Studies in writing that the student is suspended from further work in that program. This can occur for the following reasons:

1. Twice failing the Master's, PhD Comprehensive, or PhD Dissertation Defense. (Note: the Committee on Studies may choose not to grant a second try after a failure, in which case termination would occur after a single failure.);
2. Failure to complete various degree requirements within a reasonable length of time.
3. In the event that a graduate student no longer has a Major Advisor (see p. 6).
4. Termination will be by personal conference with the student.

13. Financial Aid

Application

Students seeking advanced degrees may apply for financial aid in the form of service awards (Assistantships) and non-service awards (fellowships). Non-service awards are available only in limited numbers. All persons receiving financial aid are rigorously evaluated by the entire faculty each spring with regard to their academic progress and job performance.

Assistants who are not legal residents of the state of New Mexico are asked to apply for such status toward the end of their first year at UNM. A form to apply for residency status is available in the Department Office, or at the Student Services Center. These applications must be notarized.

ASSISTANTSHIPS AND FELLOWSHIPS

The following general principles and regulations apply to Assistantships and Fellowships of various kinds.

1. All Assistantships and Fellowships are primarily grants-in-aid given in recognition of the academic promise of the student and to enable the student to earn a graduate degree. Financial need may also be considered.
2. These awards are made only to students currently enrolled, or about to be enrolled, in graduate study.
3. To be eligible for appointment or reappointment as an assistant or a fellow, the student must be in good standing in the Department and the Office of Graduate Studies. "Good standing" includes a cumulative GPA of at least 3.0 in their graduate work.
4. Research Assistants:
 - a. Assist in research work that is relevant to and ultimately used for the candidate's Thesis, Dissertation, or other requirements for the graduate degree.
 - b. Are employed for a period not less than one academic semester or the summer period between semesters.
 - c. Do not generally receive a tuition waiver, but are eligible for the resident tuition rate, provided his/her FTE is .25 or higher.
 - d. Are usually employed for 20 hours/week. A research assistant who has been advanced to candidacy may be employed more than half time with the approval of his or her Major Advisor, the Department Chairperson and the Dean of Graduate Studies. Further, a research assistant may be employed up to a

maximum of 40 hours/week during the period between the Fall and Spring Semesters and during the Summer Session, if not registered for classes.

14. Student Loans

The University administers National Direct and Guaranteed Student Loans and cooperates in the administration of a number of other such funds, including the New Mexico Student Loan Program, for which a pre-loan interview must be scheduled before an application is available from the lender.

The deadline for filing loan applications varies for each semester. For information, please contact the Student Financial Aid and Career Services Office, Student Services Center (505/277-2041). Please apply through the Graduate Office for fellowship grants, and to the Student Financial Aid and Career Service Office for loans and work-study programs.

15. Student Employment

The University maintains a Career Services Center to assist undergraduates, graduate students and alumni in finding suitable employment. Students desiring part-time employment on or off campus are urged to contact the Student Aid Office.

16. Sources of Research Funds

Research usually costs money; you should not hesitate to explore the limited sources of funding available to graduate students. There are three primary sources of research funding on campus available to graduate students:

17. Facilities & Resources

17.1 Equipment Use and Availability

Material purchased by a faculty member's grant is under control of that individual. Negotiations should be undertaken with that person for use of equipment or facilities. It is a general departmental policy to maximize the use of equipment, and financial reality does not permit duplication of many items. The Building Coordinator and the Storekeeper are best informed as to what equipment is in the department and who controls it.

17.2 Telephones

The University of New Mexico is on a centrex system. Within the UNM campus, dial "7" or "2," as appropriate (UNM phones begin with either "277" or "272"), followed by the last four digits of the number. Outside lines are obtained by dialing "9" for local calls.

17.3 Library

The library should be a key resource for every graduate student. To realize the benefits associated with using the UNM Library, you should become familiar with its organization and facilities. Not all the collections are housed in the same building. The Science, Engineering and Map collections, which will be of special interest to you, are located in the Centennial Library near Farris Engineering Hall. Should you wish to arrange a tour of the facility, please contact the Reference staff at the library and they can arrange one for you.

17.4 Teaching Assistant Resource Center (TARC)

TARC was established to provide resources and training for UNM teaching assistants. The center sponsors workshops and provides consulting services. All T.A.s are encouraged to contact TARC, which is located in 218 Marron Hall (277-2759 or 277-3019).

17.5 Graduate and Professional Student Association

Graduate students may need additional information about the university community, including the university administration, the Graduate Professional Student Association at UNM and the neighborhoods around the university. As many graduate students are temporary residents of the Albuquerque area and, frequently, new residents in New Mexico, they may also have specific questions regarding renters' rights and responsibilities in New Mexico and Albuquerque. The university-wide Graduate Professional Student Association has prepared a handbook. Additionally, the New Mexico Public Interest Research Group has prepared a Renter's Guide.

17.6 Biomedical Engineering Graduate Student Association (BME-GSA)

The purpose of the Biomedical Engineering Graduate Student Association (BME-GSA) is unification and collaboration. Our organization aims to bring together students in science, technology, engineering, and mathematics to stimulate discussion and interest in Biomedical Engineering through community outreach, venues for research presentations, information on professional opportunities, and social gatherings. The main goal of this association is to give students a social and academic outlet for collaboration and networking and the opportunity to be actively involved in the administration of the Biomedical Engineering (BME) degree program.

18. Core Classes and Electives

BME Core Courses	
BME 547	Biomedical Engineering Research Practices
BME 558	Methods of Analysis in Bioengineering

BME 567	Biomedical Engineering Seminar
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18.1 Core classes by Emphasis Area

In addition to taking the BME core, each Emphasis Area has separate core courses. Emphasis Area core classes are generally offered every other year.

Emphasis Area 1: Molecular and Cellular Systems	
BME 517	Applied Biology for Biomedical Engineers
BME 544	Thermodynamics of Biological Systems
BME 556	Protein and Nucleic Acid Engineering

Emphasis Area 2: Biomaterials, Biomechanics, and Tissue Engineering	
BME 572	Biomaterials Engineering
BME 579	Tissue Engineering
BME 598	Biomechanics

Equivalent graduate-level courses taken at other institutions may be used to satisfy one or more of the above core requirements, as approved by the student's Graduate Advisor or Curriculum Committee.

8.2 Elective Courses

For completion of the Ph.D. degree, the student must complete a minimum of 18 credit hours of elective courses from the list below. At least 9 of these must be from courses offered in the School of

Engineering. Ph.D. candidates may substitute electives other than those listed below, as approved by the student's Graduate Advisor or Curriculum Committee.

M.S. degree candidates must complete a minimum of 6 credit hours of elective courses from the lists below. M.S. candidates may substitute electives other than those listed below, as approved by the student's Graduate Advisor or Curriculum Committee.

Please note that this list will be updated frequently; updates will be found on the BME website.

Biomedical Engineering Electives	
BME 517	Applied Biology for Biomedical Engineers
BME 544	Mechanics and Thermodynamics of Molecular Components in Cells
BME 556	Protein and Nucleic Acid Engineering
BME 570	Physical Bioanalytical Methods
BME 572	Biomaterials Engineering
BME 579	Tissue Engineering
BME 598	Special topics

Special Topics includes courses such as Good Manufacturing Processes, Engineering Design for Global Health, Biofouling, Photonics in Medicine, Biomechanical Mechatronic, Biophotonics & Spectroscopy.

Other Electives in the Schools of Medicine, Arts & Sciences, and Engineering

BIOL **351	General Microbiology
BIOL 547	Advanced Techniques in Light Microscopy
BIOM 507/ BIOL 581	Advanced Molecular Biology
BIOM 508/ BIOL 582	Advanced Cell Biology
BIOM 509	Principles of Neurobiology
BIOM 510	Physiology
BIOM 514	Immunobiology
BIOM 515	Cancer Biology
BIOM 516	Molecular Genetics and Genomics
CBE/ NSMS 522L	Fundamentals of Nanofluidics
CBE/ NSMS 530	Surface and Interfacial Phenomena
CBE/ NSMS 538/438	Biosensors Fundamentals and Applications
CBE 504	Nanomaterials

CBE 521	Advanced Transport Phenomena I
CS 529	Introduction to Machine Learning
CS 530	Geometric and Probabilistic Methods in CS
CS 561	Algorithms and Data Structures
CS 590	Topics: Complex Adaptive Systems
ECE 500	Theory of Linear Systems
ECE 510	Medical Imaging
ECE 533	Digital Image Processing
ECE 537	Foundations of Computing
ECE 539	Digital Signal Processing I
ME 501	Advanced Mechanics of Materials
ME 504	Computational Mechanics
ME 512	Introduction to Continuum Mechanics
ME 530	Theoretical Fluid Mechanics I
ME 571	Advanced Materials Science