



# Department of Health and Life Sciences

## Graduate Student Handbook

August, 2017

# Department of Health and Life Sciences

## Graduate Student Handbook

---

### Contents

Welcome to the M.S. Program in Biomedical Sciences .....	0
Charles R. Drew University Vision .....	1
Charles Drew University Mission.....	1
Department of Health and Life Sciences Mission.....	1
Master of Science in Biomedical Sciences .....	1
Goals and Student Learning Outcomes .....	1
Program Student Learning Outcomes (PSLOs) .....	2
Admission Requirements.....	2
Admission Deadlines.....	3
Financial Aid .....	3
Scholarships.....	3
Advising.....	3
CHECKLIST.....	4
INITIAL ADMISSION.....	4
AFTER ADMISSION.....	4
SEMESTER 1 .....	4
SEMESTERS 2 AND 3.....	4
Biomedical Sciences M.S. Roadmap .....	6
Curriculum.....	7
Course Descriptions .....	8
Policies .....	10
Credit hour policy .....	10
Probation Status.....	10
Termination of the program.....	11
Petition for Reinstatement.....	11
Potential Thesis Research Advisors for M.S. Students .....	13
M.S. Thesis Research Proposal Guidelines .....	15
M.S. Thesis Guidelines .....	16
Deadlines for Graduation .....	17
Advancement to Candidacy .....	17
Thesis Defense .....	17
Thesis Submission to the Department.....	17
Commencement Participation Form .....	17

## Welcome to the M.S. Program in Biomedical Sciences

Dear Student in the M.S. Program:

Welcome to the M.S. Program in Biomedical Sciences at Charles R. Drew University (CDU). We hope that your participation in the program will be intellectually rewarding and will help you advance your educational and career goals.

This handbook is designed to help you navigate the procedures that you need to follow to make your way through the program. Adherence to the policies and procedures will help to ensure completion of the program. You are required to be advised every semester by either the Department Chair or your thesis advisor. Mandatory advising allows us to monitor your progress through the program and to solve any problems that may arise. If you have any questions at any time during your participation in the program, please feel free to contact the Program Coordinator Daniela Lara (x4820).

There are two major components to the M.S. Program in Biomedical Sciences, classroom work and research. The classroom component consists of a core of required courses. The research component involves completion of a research project, under the direction of a faculty research mentor, and culminates in the preparation of a thesis. Four units of academic credit are earned for research participation and thesis preparation..

If you were admitted as a Conditional Status, the conditions for your admission and continuation in the program were detailed in your notice of admission. Once these conditions are satisfied, you will be promoted to Regular Status.

Again, welcome to the M.S. Program in Biomedical Sciences.

# Department of Health and Life Sciences

## Graduate Student Handbook

---

### Charles R. Drew University Vision

Excellent health and wellness for all, in a world without health disparities.

### Charles Drew University Mission

Charles R. Drew University of Medicine and Science is a private non-profit student centered University that is committed to cultivating diverse health professional leaders who are dedicated to social justice and health equity for underserved populations through outstanding education, research, clinical service, and community engagement.

### Department of Health and Life Sciences Mission

To provide an integrated program of learning, research, leadership training, and community service in order to prepare graduates to pursue their goals for professional and advanced degrees in health care or biomedicine.

### Master of Science in Biomedical Sciences

The Master of Biomedical Sciences is a degree formulated to prepare students for careers in advanced health professions or for continuation on to PhD level programs in biomedical sciences. The need for professionals with this level of training is growing in the United States and is projected to grow at least 13 percent from 2012 to 2022, similar to other growing medical occupations in demand.

### Goals and Student Learning Outcomes

**Goal 1:** To Acquire the knowledge, skills and attitudes of the biomedical sciences, necessary for a career in health professions.

- Objective 1: Students will successfully complete lecture-based courses in medical biochemistry, genetics, infectious disease and immunology.
- Objective 2: Students will participate in laboratory experiences.

**Goal 2:** To master oral and written communication skills necessary to convey the results of their scholarly work.

- Objective 1: Students will participate in CEAL and Journal clubs.
- Objective 2: Students will attend scientific meetings.

**Goal 3:** To develop competency in Biomedical research.

- Objective 1 Students will gain skills in collecting organizing, evaluating and

# Department of Health and Life Sciences

## Graduate Student Handbook

---

analyzing data.

- Objective 2: Students will complete the research project, write a thesis and publicly defend the research.

### Program Student Learning Outcomes (PSLOs)

1. Synthesize advanced knowledge in biomedicine, bioinformatics and translational sciences.
2. Evaluate and judge the challenges of health disparities in the community and globally
3. Develop critical thinking skills for applying scientific knowledge in evaluating scientific literature.
4. Acquire skills for developing hypotheses, analyzing data, and interpreting and communicating results in the biomedical sciences.
5. Promote ethical standards for all professional activities in the biomedical sciences and healthcare.

### Admission Requirements

The criteria for admission includes:

1. University admissions application.
2. A non-refundable \$75 application fee.
3. A Bachelor degree from an accredited institution.
4. Overall GPA of 3.0 or above;
5. One of the following admission exams with a minimum score at or above indicating excellence:
  - MCAT: 24, MCAT 2015 Score 498
  - GRE: 300
  - DAT: 18
  - PCAT: 70
  - OAT: 300
6. Obtained all pre-requisite courses prior to matriculation.
  - General Chemistry with lab: 1 year or 8 units
  - General Biology with lab: 1 year or 8 units
  - Physics with lab: 1 year or 8 units
  - Organic Chemistry with lab: 1 year or 8 units
  - Calculus or Statistics 1 semester or 3 units
7. A personal essay describing your motivation and future goals for applying to the Master of Biomedical Sciences program.
8. Three (3) recommendations using the recommendation forms found on the

# Department of Health and Life Sciences

## Graduate Student Handbook

---

Application website, <http://www.cdrewu.edu/Apply>

### 9. Resume or Curriculum Vitae

Students who meet all but one requirement may be admitted as a conditional graduate student at the discretion of the DHLS Admission committee. They must meet any conditions by the beginning complete the missing requirement before the first semester of the program.

### Admission Deadlines

See University Policies section of the CDU Catalog for deadlines regarding Application for Admission and Financial Aid. Class sizes of approximately 25 students are admitted for each fall semester. Applications for admissions are processed as they are received and applicants are encouraged to complete their application packets as soon as possible and not wait for the final deadline as the class may be filled.

### Financial Aid

Graduate students may be eligible for financial aid. They are encouraged to meet with the CDU Financial Aid office to learn more about the scholarships, grants, and loans that may be available.

### Scholarships

There are several scholarships specifically available for graduate students. Applications are available from the office of Financial Aid. In addition, a COSH Dean scholarship is available for new incoming students.

### Advising

Advising is a critical component of the Graduate Program in Biomedical Sciences. Students are required to meet with the Department Chair or the research advisor every semester.

# Department of Health and Life Sciences

## Graduate Student Handbook

---

### CHECKLIST

#### M.S. Program In Biomedical Sciences

This timeline is based on completion of the program in 3 semesters. A longer time may be required, depending on academic and research progress.

#### INITIAL ADMISSION

- Initial admission as Conditional Students

Conditional status is a provisional admission to the program. It is reserved for students who are deficient in one admission requirement. Students admitted under this status need to make up the deficiency before the program starts. The conditions associated with admission under this status will be described in the acceptance letter.

- Initial admission as regular students.

Begin taking required courses

#### AFTER ADMISSION

##### SEMESTER 1

- Identification of a research thesis advisor.
- Selection of the advisory committee members. Meet with your program advisor.
- Approval of thesis research project by research mentor.
- Completion of **M.S. Biomedical Thesis Research Proposal Outline** by the end of the fall semester. It has to include: title, goals and objectives.
- It is required to meet with your mentor weekly or biweekly and work at least 10 hours a week on your thesis research once you begin.

##### SEMESTERS 2 AND 3

- Completion of all coursework.
  - Completion of research outlined in Thesis Proposal. (at least 10 hours per week in semester 2; at least 20 hours a week in semester 3)
  - Preparation and writing of Thesis in semesters 2 and 3.

## Department of Health and Life Sciences Graduate Student Handbook

---

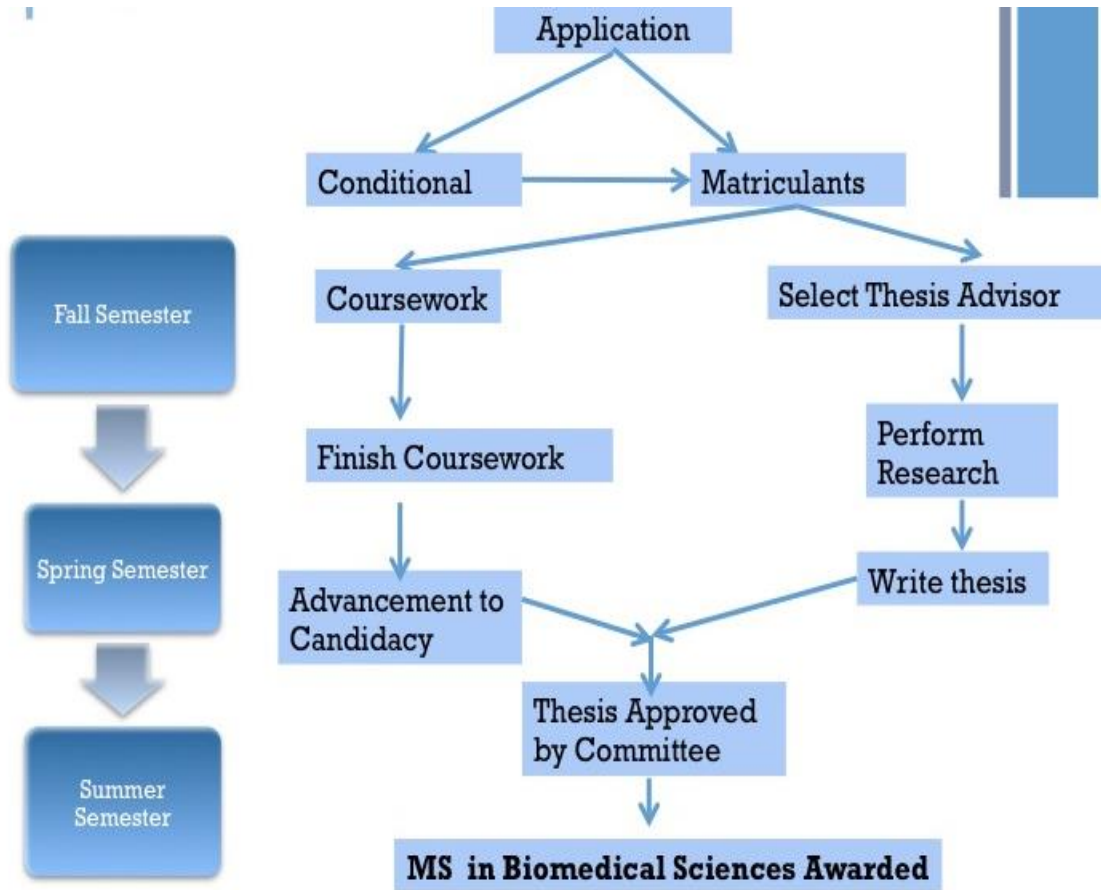
- **Application for Graduation** form submitted to Admissions and Records (Semester just prior to the intended graduation date; note deadlines in Catalog/Class Schedule).
- Approval of thesis by graduate committee. A draft is first submitted to the research mentor and thesis advisor for corrections, when these corrections have been made a final version is submitted to committee members. Allow 2 weeks for each review. Submit the first draft by July 15th.
- Submission of thesis to Graduate Committee by August 1st.
- Defense of Thesis in a colloquium (first or second week of August)
- Submission of thesis to CDU library.



Department of Health and Life Sciences  
Graduate Student Handbook

---

**Biomedical Sciences M.S. Roadmap**



## Department of Health and Life Sciences Graduate Student Handbook

---

### Curriculum

**Overview:** The M.S. Program in Biomedical Sciences includes a required series of core courses. The academic program is expected to culminate in a thesis based on original research.

**Courses:** The MS Degree in Biomedical Sciences requires completion of 36 units with an overall GPA of 3.0 ("B"). The minimum passing grade for courses is "C+". Full Time status for a graduate student consists of 9 or more units per semester.

Fall Semester		
Course #	Course Title	Credit unit
MBS 500	Medical Biochemistry	3
MBS 510	Physiological Basis of Health and Diseases	3
MBS 520	Principles of Biomedical Informatics	2
MBS 530	Translational Research Methods I	3
MBS 540	Ethical Conduct in Medicine and Science	2
	Credits	<b>13</b>
Spring Semester		
Course #	Course Title	Credit unit
MBS 531	Translational Research Methods II	3
MBS 550	Medical Genetics and Epigenetics	3
MBS 560	Scientific Communication	2
MBS 570	Advances in Hematology and Immunology	3
MBS 590	Clinical Topics in Urban and Global Medicine	3
	Credits	<b>14</b>
Summer Semester		
Course #	Course Title	Credit unit
MBS 580	Infectious Diseases and Epidemiology	3
MBS 595	Graduate Seminar in Health Disparities & Social Justice	2
MBS 599	Research thesis	4
	Credits	<b>9</b>
	Total Credits:	<b>36</b>

# Department of Health and Life Sciences

## Graduate Student Handbook

---

### Course Descriptions

***MBS 500 Medical Biochemistry*** - The course is designed to provide a fundamental understanding of biochemistry with clinical correlations. Topics include protein structure, enzyme kinetics, carbohydrate metabolism, lipid utilization and biosynthesis, amino acid metabolism, nucleotide metabolism, and human nutrition.

**Units: 3**

***MBS 510 Physiological Basis of Health and Diseases*** This course describes the disordered physiology and clinical consequences resulting from common disease processes. Seminar discussions focus on alterations in normal functions of major organ systems.

**Units: 3**

***MBS 520 Principles of Biomedical Informatics*** – This course provides an overview of the field of Biomedical Informatics for health professions students and students in other disciplines. The goal is to develop competencies that will allow students to take advantage of the technology in this field in order to engage in clinical practice, research and administration.

**Units: 2**

***MBS 530 Translational Research Methods I*** – This course reviews the application of basic discovery to human health and disease. Students will understand the basic technologies and techniques used in translational research, the components for protecting human subjects, and how to assemble a multi-disciplinary team to conduct translational research.

**Units: 3**

***MBS 531 Translational Research Methods II*** – This course trains the next generation health professionals who understand the future challenges of health disparities and enable to fill in the gap between biomedical science and clinical practice. Students gain the fundamental skills, methodology and necessary principals through mentorship program and/or laboratory trainings.

**Units: 3**

***MBS 540 Ethical Conduct in Medicine and Science*** - Examining ethical conduct of medicine and scientific research in the broader context of service to society. Topics include authorship, conflict of interest, data acquisition, and management, and the protection of human subjects and animals involved in research programs.

**Units: 2**

## Department of Health and Life Sciences

### Graduate Student Handbook

---

***MBS 550 Medical Genetics and Epigenetics*** - Provides an overview of human genetic concepts and clinical disorders and application to clinical problems. Surveys cytogenetics, molecular genetics, biochemical genetics, population genetics, clinical genetics and epigenetics.

**Units: 3**

***MBS 560 Scientific Communication*** - This course is focused on best practices in science communication methods intended for a variety of audiences from students and experts in the field to media representatives, the general public and government agencies.

**Units: 2**

***MBS 570 Advances in Hematology and Immunology*** Provides advanced knowledge in clinical Immunology and hematology as it applies to disease pathogenesis and patient care. Examines new advances in interventional clinical immunology and hematology, and hematopoietic stem cell origins and immune responses to infectious diseases.

**Units: 3**

***MBS 580 Infectious Diseases and Epidemiology*** - Examines infectious diseases, dynamics of disease transmission, and knowledge in clinical infectious diseases as it applies to disease pathogenesis and patient care. Delineates the mechanisms behind the emergence of new microbial threats and pathogen establishment and maintenance within a host.

**Units: 3**

***MBS 590 Clinical Topics in Urban and Global Medicine***- introduces the most important global and urban health problems with a focus on clinical practice. Causes of global and urban diseases are studied through evidence-based knowledge, skills, and attitudes needed to prepare students to become global leaders in biomedicine.

**Units: 3**

***MBS 595 Graduate Seminar in Health Disparities & Social Justice*** - Provides an introduction to health disparities and social justice. Includes in depth discussion of the theories of justice, social determinants of health, and community-based participatory research and narrative methods.

**Units: 2**

***MBS 599 Research Thesis*** - Provides training in research, scientific writing, and dissemination of research results.

**Units: 4**

# Department of Health and Life Sciences

## Graduate Student Handbook

---

### Policies

#### Credit hour policy

One lecture (taught) or seminar (discussion) credit hour represents 1 hour per week of scheduled class/seminar time and 2 hours of student preparation time.

One thesis credit hour represents 4-5 hours per week of supervised and /or independent practice. Four thesis credit hours represent between 160-200 total hours of academic work per semester.

**Transfer Credit Policy** The Master of Science in Biomedical Sciences allows up to 6 units to be transferred to the program.

#### Probation Status

If a student fails to successfully complete two courses within the semester, he/she will be put on probation. A student on probation will be required to repeat and successfully complete the courses the following year when the courses are offered again, and accordingly, will not be able to graduate until completed. Probation will be lifted when the student successfully completes the repeated courses. A student on probation who fails another course will be administratively dropped from the program, but will be given the option to re-apply to the program the following academic year.

Probation may be considered by the MSBMS program for the following reasons, but is not limited to:

- Record of excessive absences (three or more absences in one class) and/or tardiness.
- Failure to successfully complete two MSBMS courses with a letter grade of “C+” (78%) in one semester.
- Unsatisfactory removal of two “Incomplete” grades.
- The student is in violation of the program, college or university’s behavioral or professional standards.
- Failure to comply with any MSBMS program policies or regulations.

The probation status is continuous until the student is either in a good academic standing and/or has met the behavioral standards of the program. The student will be notified in writing of his/her probationary status. The minimum standard(s) required to remove this probationary status will be stated in the notice of probation to the student.

# Department of Health and Life Sciences

## Graduate Student Handbook

---

### Termination of the program

A student may be terminated from the MS BMS program if one or more of the following occurs:

- Failure to successfully complete two courses with a letter grade of "C+" (78%) after re-taking it.
- Demonstrates inappropriate or disrespectful conduct toward faculty, staff and/or student peers; or
- Fails to demonstrate ethical conduct.

### Petition for Reinstatement

Upon receipt of a termination notice, a student who believes there are extenuating circumstances that led to the noted deficiencies may submit a written request for reinstatement into the program. Requests must be made within ten (10) working days after receipt of the program's notice of termination. Once the program receives a reinstatement request, the following process will occur:

1. The student shall submit a written petition explaining the extenuating circumstances leading to the notice of termination;
2. The Program Director will constitute a Reinstatement Review Committee consisting of three (3) faculty. The Reinstatement Committee will meet within five (5) working days following receipt of the student's written petition;
3. The committee shall deliberate in private and transmit its recommendations to the Program Director within five (5) working days following the reinstatement meeting;
4. The program Director shall consider the Reinstatement Review Committee's recommendation and provide written notification to the student and the committee of his/her decision within three (3) working days of receipt of the committee's recommendation.

Students who are reinstated, as a result of their appeal, but who subsequently violate the above policies are automatically and permanently terminated from the program without an additional opportunity to request reinstatement.

**Continuing Student Status:** Students must maintain continuous enrollment throughout their time in the graduate program, including the semester they graduate. Students who miss a semester will have to reapply to the university and to the program.

**Planned Graduate Student Leave:** It is a university requirement that graduate students maintain continuous attendance throughout the course of their study for the Master's degree. Any graduate student in good academic standing may request a Planned Graduate Student Leave. Reasons for seeking a leave are likely to be varied, but all

## Department of Health and Life Sciences

### Graduate Student Handbook

---

applicants should intend to return to formal study within a specified time period.

To apply for a Planned Graduate Student Leaves, the student must be a conditionally classified or classified graduate student with a grade point average of 3.0 or better. Application for the leave must be filed with the appropriate graduate coordinator before the first day of classes for the semester during which the leave is to begin, and should be accompanied by appropriate documentation.

Approval of the leave does not constitute an extension of the time period for completing all course work and other requirements for the master's degree. Approval of the student's leave application constitutes agreement by the university that the student will be temporarily exempted from the continuous attendance requirement as long as the student meets the conditions specified in the approved leave application. Students who do not return to the university at the conclusion of their planned leave will be considered to have withdrawn from the university.

**Graduate Committee:** Each student is assigned a program advisor and a thesis mentor to guide their research. The advisor will select one additional member for the student's Graduate Committee. At least two members of the committee, including must be CDU faculty. The research mentor may be a faculty member from another department or academic institution. The program advisor and thesis mentor must be selected in the first semester of the program.

## Department of Health and Life Sciences Graduate Student Handbook

---

### Potential Thesis Research Advisors for M.S. Students

Students in the M.S. Program in Biomedical Sciences can select research advisors/mentors from among the CDU faculty (Table 1). In addition, a number of research labs at LA Biomed, the research institute of Harbor UCLA, are available to conduct research. Research mentors at other institutions may be used with approval of the Health and Life Sciences Department Graduate Program Committee.

Name	Terminal Degree	Primary Affiliation	Research Type	Research Area
Monica Ferrini	PhD	CDU	Basic	Nerve damage, fibrosis and aging
Jorge Artaza	PhD	CDU	Basic	Vitamin D and muscle differentiation
Thomas Magee	PhD	CDU	Basic	Fetal Programming
Suzanne Porsasz-Reisz	PhD	CDU	Basic	Myostatin and obesity
Victor Chaban	PhD	CDU	Basic	
Michael Ross	MD	LA BioMed	Basic	Fetal programming
Lejeune Lockett	MD	CDU	Clinical	Global Medicine
Mina Desai	PhD	LA BioMed	Basic	Fetal programming
Eva Mc ghee	PhD	CDU	Basic	HPV cervical cancer
Yanyuan Wu	PhD	CDU	Basic	Breast Cancer
Piwen Wang	PhD	CDU	Basic	Arctigenin and prostate cancer
Yong Wu	PhD	CDU	Basic	metabolomics and cancer
Steve Chung	PhD	CDU	Basic	Colon Cancer Research
Rajan Singh	PhD	CDU	Basic	Obesity, Brown Fat and follistatin
Shehla Pervin	PhD	CDU	Basic	Breast Cancer
Amiya Sinha Hikim	PhD	CDU	Basic	Nicotine and liver steatosis
Sateysh Sinha	PhD	UCLA	Basic	Inflammation and Diabetes nephropathy
Nestor F. Gonzalez-Cadavid	PhD	CDU	Basic	Erectile Dysfunction and Urinary Incontinence
James Tsao	MD	CDU	Basic	Diabetes and skeletal muscle
Homero del Pino	PhD	UCLA	Community	philosophy and clinical research



## Department of Health and Life Sciences Graduate Student Handbook

---

Sheba George	PhD	UCLA	Community	Health disparities relative to race/ethnicity, gender and culture-based differences
Magda Shaheen	PhD	CDU	Secondary data analysis	
Virender Rehan	MD	LABiomed	Basic Sciences	Neonatal lung maturity and lung injury-repair,
Fawzia Gwzia	PhD	LaBiomed	Basic Sciences	Corneal Epithelium Regeneration
Yan He Lue	MD	LaBiomed	Basic Sciences	Genetic and hormonal regulation of spermatogenesis
Susana Cavallero	PhD	USC	Basic Science	Mechanism of Heart Development

## Department of Health and Life Sciences Graduate Student Handbook

---

### **M.S. Thesis Research Proposal Guidelines**

- The M.S. thesis research should be a well thought-out, hypothesis driven proposal. It should include Title, goals and objectives. They must be submitted by the end of the fall semester.
- The Introduction, including Goals and Objectives, Materials and Methods, and References. Must be submitted by the end of the Spring semester.
- The proposal should be developed in close communication with the research mentor/advisor, but should be written solely by the student.

**The scope of the research proposed should be reasonable to be accomplished in 3 semesters or less.**

## Department of Health and Life Sciences Graduate Student Handbook

---

### M.S. Thesis Guidelines

- After completion of the research outlined in the proposal, the student will write a thesis. Students are encouraged to begin writing portions of the thesis that do not require full completion of the research. These include Introduction, Methods, and References.
- For specifics on writing the thesis, see the *Department of Health and Life Sciences Thesis Guidelines* which can be obtained from the office and posted on blackboard.
- The thesis will be submitted first to the research mentor and thesis advisor for approval. Please allow at least 2 weeks for the advisor to read the thesis. Several revisions may be required before approval. Failure to allow enough time for revisions may result in a delay of graduation.
- After approval by advisor, the thesis will be submitted to the members of the Graduate Committee for approval. Please allow several weeks for the committee members to read the thesis.
- Upon approval of the thesis, the student and advisor will arrange an oral defense of the thesis, in the form of a public seminar to which faculty, students and the public are invited to attend.

# Department of Health and Life Sciences

## Graduate Student Handbook

---

### Deadlines for Graduation

#### Advancement to Candidacy

An application for advancement to candidacy is submitted when the student has completed most of the course work and is completing the thesis. Application is made through the Registrar Office and must be done before the student can complete the thesis. This application will list the student's program of courses and other requirements, which must be completed for the degree.

A minimum of 13 resident units

Classified Standing

Maintained a minimum grade point average of 3.0 and received a grade of C+ or better in all courses taken in the graduate program with no grade lower than a "C" in the degree program

Submission of an approved Thesis Research Proposal

After the student has submitted an Application for Graduation form to the Office of the Registrar, a degree check will be performed to verify all requirements have been completed..

#### Thesis Defense

An oral defense of the thesis, in the form of a public colloquium to which the faculty, students and the public are invited to attend will be scheduled through consultation with the student, advisor and Graduate Coordinator. The thesis defense must be scheduled in the same semester as the student is graduating and should be scheduled as soon as the thesis is approved by the Graduate Committee.

#### Thesis Submission to the Department

A bound copy of the thesis is to be submitted to the Library. In addition, many thesis advisors also require a bound copy, and students also may wish to have their own bound copy. Therefore, students may wish to have up to 3 copies bound.

#### Commencement Participation Form

Degree candidates wishing to participate in the Commencement Exercises must file the Commencement Participation Form no later than April 15. If the deadline date should fall on a weekend or holiday, the deadline will be by 5:00 p.m. on the previous working day.