



# **Biotechnology Student Handbook 2020-21**

**The information provided in this document serves to supplement the requirements of the Graduate School of Biomedical Sciences detailed in the UNTHSC Catalog with requirements specific to the discipline of Biotechnology.**

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## **Biotechnology**

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## **Program Description**

Biotechnology has been defined as 1) a collection of technologies that capitalize on the attributes of cells, such as their manufacturing capabilities, and put biological molecules, such as DNA and proteins, to work for us; 2) the application of molecular and cellular processes to solve problems, conduct research, and create goods and services; 3) a cluster of industries that rely on insights into the way living organisms function; and 4) the use of technology and biology to investigate development of new medicines and pharmaceuticals, devices, and methods, including but not limited to new methods of DNA fingerprinting, wildlife management and conservation.

The master's degree in the Biotechnology Program provides a strong foundation upon which to build a career. The rigorous curriculum focuses on providing students a broad-based view of the biomedical sciences, as well as in depth knowledge of lab management and industry practice, ethical issues, and laboratory skills necessary to prepare the student for a career in the biotechnology and life science industry. This program is designed to train individuals for careers in industry and research by providing the tools and experience needed for highly technical positions offered in emerging biotechnology companies, life science organizations, and research institutions. Candidates for the degree earn approximately 54 SCH of which 32 SCH are core requirements, 10 SCH are laboratory technique courses and 18 SCH are a laboratory Internship Practicum, the latter substituting for a thesis requirement. The program is usually completed in two years. Students are only admitted in the summer semester.

As part of the Biotechnology Program, all students will complete a 2-semester (32 weeks, 40 hours/week) Internship Practicum in biotechnology and use this experience to write a detailed Internship Practicum Report pursuant to receiving the Master of Science degree. The average time to complete the degree is 2 years.

Each student is responsible for the completion of the requirements for the Master of Biotechnology Program according to the procedures that follow. Each item must be completed in the sequence and time period indicated. Forms are subject to revision at any time and should be obtained from the Graduate School of Biomedical Sciences.

## Opportunities for Graduates in Biotechnology

Biotechnology in the United States is a dynamic industry and there are many opportunities for employment. When considering a career in biotechnology, most people think of a scientist in a white coat in a laboratory developing drugs to improve the quality of life. However, biotechnology has a wide variety of career opportunities ranging from sales and marketing, to research and development, to manufacturing and quality control and assurance. The biotechnology industry continues to flourish nationwide. Not only are the total number of biotechnology companies increasing, but employment in the biotechnology field continues to grow as well since the number of employees has increased by more than 90 percent.

There are many career options for someone with a graduate degree in biotechnology. Career options include: a Bioinformatician helps to design, develop and use tools for gaining information about biotech procedures, implement these tools and analyze the data obtained from them. A Biotechnical Scientist works as part of a team of scientists under the direction of a group leader on a given product. A Consultant provides advice and support in product development, process implementation, forensic analysis, manufacturing, and management recruitment and training. Their goal is to identify possible problems or issues and help trouble-shoot them, ensuring optimal client returns on investment. An Industry Researcher is a professional who helps define the range and scope of new areas of research.

## Requirements

**The requirements for admissions and graduation are listed in the [GSBS Degree Programs](#) chapter of the [UNTHSC Catalog](#).**

Each student is responsible for the completion of the core requirements for the Biotechnology program according to the procedures that follow. Each item must be completed in the sequence and time period indicated. Forms are subject to revision at any time and should be obtained from the Graduate School of Biomedical Sciences' web site.

By the end of the second summer semester, the student will be assigned a major professor and an advisory committee consisting of the major professor and two other graduate faculty members. The names of these individuals will be filed on the designation of advisory committee form with the GSBS Office of Admissions and Services. A degree plan must also be filed with the GSBS Office of Admissions and Services at this time.

Students must be in good academic standing prior to be allowed to start their internship at a site (cumulative GPA 3.0). Exceptions to this rule can only be granted by the dean or his designee.

During the fall and spring semesters of the second year, the student will enroll in BMSC 5697 Internship Practicum (9 SCH). The internship will be at a site previously approved by the advisory committee. The student is responsible for transportation to and from the site, whether it is on-campus or off-campus. During this time, the student will gain experience in tasks associated with the application of biotechnology in an industrial setting. The student should not expect to receive a stipend or other monetary compensation for the internship. A formal plan (research proposal) describing how the practicum is to be spent must be approved by the advisory committee and submitted 4 weeks after starting the internship.

A formal research proposal describing how the practicum is to be spent must be approved by the advisory committee and submitted to the graduate school 4-5 weeks after the start of the internship.

At the end of the internship practicum, the student must submit a Final Practicum Report and internship daily notebook to the mentor for his/her approval. The advisory committee will meet with the student at this time and review both the notebook and written report. The student will present his/her work as both an oral and written report. The oral presentation will be open to the public and will then be followed by a private meeting with the advisory committee. The written report should be given to the committee two weeks before the formal meeting. At this time, the committee will either approve or disapprove the work of the practicum and the report. If not approved, the student may have a chance to revise the report or repeat the practicum one time at the discretion of the committee. The mentor, together with the other members of the committee, will assign a letter grade to the final semester of practicum. The report must be submitted in accordance with the instructions for completing graduation requirements within the deadlines for graduation published in the academic calendar. A more detailed description of the internship practicum and report requirements may be found in the Internship Practicum Guidelines available on the GSBS graduation website.

It is strongly suggested that the student and major professor, as well as the major professor and the on-site mentor, communicate on a regular basis to review the student's progress during the practicum.

## Biotechnology Curriculum

The following curriculum is required for all students enrolled in the Biotechnology program. The typical time-to-degree for MS students is eighteen months.

<i>Dept</i>	<i>Course Number</i>	<i>Title</i>	<i>SCH</i>	<i>Semester to be Completed</i>
BMSC	5400.002	Biostatistics for Biomedical Science	4	Summer Year 1
BMSC	5390	Short Course in Health Disparities	1	Summer Year 1
BMSC	5225.002	Introductory Biochemistry	2	Summer Year 1
		<b>Subtotal</b>	<b>7</b>	
BMSC	5301	Principles of Biochemistry	3	Fall Year 1
BMSC	5302	Molecular Cell Biology	3	Fall Year 1
BMSC	5303	Immunology and Microbiology	2	Fall Year 1
BMSC	5310	Scientific Communications	2	Fall Year 1
BMSC	5160	Biomedical Ethics	1	Fall Year 1
BMSC	5170	Techniques in Biomedical Sciences*	1-2 each	Fall Year 1
		<b>Subtotal</b>	<b>12-15</b>	

BMSC	5304	Physiology	5	Spring Year 1
BMSC	5305	Pharmacology	2	Spring Year 1
BMSC	5165	Introduction to Industry Practice & Laboratory Management	2	Spring Year 1
BMSC	5140	Seminar in Current Topics	1	Spring Year 1
BMSC	5170	Techniques in Biomedical Sciences*	1-2 each	Spring Year 1
		<b>Subtotal</b>	<b>12-14</b>	
PHRM	6440	Methods in Molecular Biology	4	Summer Year 2
BMSC	5170	Techniques in Biomedical Sciences*	1-2 each	Summer Year 2
		<b>Subtotal</b>	<b>5-6</b>	
BMSC	5697	Laboratory Internship Practicum	9	Fall Year 2
		<b>Subtotal</b>	<b>9</b>	
BMSC	5697	Laboratory Internship Practicum	9	Spring Year 2
		<b>Subtotal</b>	<b>9</b>	
		<b>Total</b>	<b>56</b>	

\*Students must take a total of 5 SCH in Techniques in Biomedical Sciences or Laboratory Rotation courses. Each course will be 1 or 2 SCH. Students are responsible for selecting these techniques courses and registering for them, and must obtain approval from faculty teaching the techniques course.

The health science center reserves the right to make changes at any time to reflect current board policies, administrative regulations and procedures, amendments by state law and fee changes. Information provided in this document is subject to change without notice and does not constitute a contract between the University of North Texas Health Science Center and a student or an applicant for admission. The institution is not responsible for any misrepresentation or provisions that might arise as a result of errors in preparation.

**All Course Descriptions can be found in the Catalog**

<https://www.unthsc.edu/graduate-school-of-biomedical-sciences/catalogs/>

**Academic Dishonesty:** Instances of cheating or other academic dishonesty will be handled according to the Policies of the University of North Texas Health Science Center, Section 07, *Number 7.126 Student Code of Conduct and Discipline*.

# Description of the Student Internship Practicum

## Purpose of the Internship Practicum

The Internship Practicum provides a hands-on training experience for the graduate student whose Master's degree will be in the specialized discipline of Biotechnology. The internship may take place either on-campus or at an approved off-campus site in the Dallas-Fort Worth-Denton Metroplex and, in some cases, at a site in other parts of the state or country. Students will be expected to provide for their own transportation and housing needs during the internship experience.

Prior to the start of the internship, students will need to complete the following:

- GSBS Pre-Internship Agreement
- Complete Drug Testing Panel
- Criminal Background Check
- CITI Training
- Research Conflict of Interest Training and Disclosure

During the summer and fall semesters of the second year, the student will enroll in Internship Practicum (BMSC 5697) for 9 SCH each semester. During this time, the student will gain experience in tasks associated with the application of clinical research in a hospital or industrial clinical research setting. Internship Practicum provides a hands-on training experience for the CRM student. The internship takes approximately 2 semesters (32 weeks, 40 hrs/week) during which the student will be working under the direct supervision of an internship mentor at the internship location.

UNT Health Science Center will identify approved, off-campus internship opportunities in north Texas and will work to place students at suitable sites. From time to time, opportunities may exist in other parts of the state or country. It is also possible that occasional opportunities will exist on the campus. Students are free to identify internship opportunities on their own initiative. All such opportunities must be approved by the Graduate School. Requests for approval of a student-identified internship opportunity must be received by February 1. The student is responsible for transportation to and from the site, whether it is on-campus or off-campus.

UNTHSC does not offer any remuneration to the student when he/she is enrolled in BMSC 5697 Internship Practicum and the student should not expect to be paid as an intern. The student should not expect to receive a stipend or other monetary compensation for the internship. If an internship site offers a stipend, the site will determine the amount and conditions. All interactions concerning the stipend will take place between site administration and the student. No student should consider that the internship site has any obligations to pay, hire or in any way retain a student during or after the internship or after graduation. If the site offers to remunerate the intern while he or she is registered in BMSC 5697, the student will not attempt to collect unemployment compensation after completion of BMSC 5697 or the master's program.

Prior to the start of the internship, students will need to complete the following:

- GSBS Pre-Internship Agreement
- Complete Drug Testing Panel
- Criminal Background Check
- CITI Training, as required by the internship site

- Research Conflict of Interest Training and Disclosure

A formal plan (research proposal) describing how the practicum is to be spent must be approved by the advisory committee and submitted 4-5 weeks after starting the internship. The Research Proposal Approval form may be obtained from the Graduate School of Biomedical Sciences' web site.

At the end of Internship Practicum (BMSC 5697), students will present their work as both oral and written reports. The oral presentation will be open to the public and will then be followed by a private defense with the advisory committee. The student must submit a first draft of his/her internship practicum report and internship daily journal to the major professor prior to the public seminar for review. The major professor must approve the internship practicum report prior to the student submitting it to advisory committee members. The final written report should be given to the committee no later than two (2) weeks before the formal defense. Students should coordinate the reservation of a seminar room with the Graduate School office no later than one (1) month prior to their defense. At this time the committee will either approve/or not approve the work of the internship and the report. If disapproved, the student may have a chance to revise the report or repeat the practicum one time at the discretion of the committee. The major professor together with the other members of the committee will assign a letter grade to the practicum. The report must be submitted in accordance with the instructions for completing graduation requirements within the deadlines for graduation published in the academic calendar. A more detailed description of the internship practicum and report requirements may be found in the Internship Practicum Guidelines available on the GSBS graduation website.

The student is expected to keep a laboratory notebook/daily journal during this experience. The Internship Mentor will review and sign-off on the journal each week. The journal will form part of the basis for the student's final report and must be turned in to the student's Advisory Committee along with the final Internship Practicum Report.

At the end of the practicum, the student will write a report detailing the activities of the internship. The student's advisory committee must approve this report together with the laboratory notebook. The student must make a formal presentation to the advisory committee and defend the work at this time. A copy of the report and the journal must be submitted within the appropriate deadlines for graduation (see the Academic Calendar).

## **Function and Grading of the Student Internship Practicum**

The Internship Practicum provides a hands-on training experience for the graduate student whose Master's degree will be in the specialized discipline of Biotechnology. The Internship Practicum is an approved course (BMSC 5697) offered through the Department of Biomedical Sciences, Graduate School of Biomedical Sciences. The student will receive either an "Unsatisfactory (U)" or a "Satisfactory (S)" for all semesters enrolled in the Internship Practicum, until the semester the student graduates. At the end of this second semester, when the student completes all requirements for the Internship Practicum, he/she will receive a letter grade. Only this letter grade will contribute to the overall GPA. The U/S grades will not be figured into the overall GPA.



## **Duration and Time of the Internship**

The internship takes approximately 2 long semesters (minimum 32 weeks, 40 hrs/week) during which the student will be working under the direct supervision of an Internship Mentor at the internship location. If the student does not complete the Internship Practicum in the time frame stipulated in his/her program, the student may register for additional hours of BMSC 5697 Internship Practicum. During the Internship Practicum, students will be available 5 days a week, usually from 8:00 a.m. until 5:00 p.m., however the exact work schedule will be determined at each internship site.

## **Activities during the Internship**

During the internship, the Major Professor, graduate faculty Advisory Committee, and site administrator(s) will assign the student responsibilities that have been previously agreed upon and approved in the Internship Practicum Proposal. Details about the components and formatting of the Internship Practicum Proposal are outlined in a separate section in this handout. The student will work under the guidance and direction of an Internship Mentor at the internship site.

The student is expected to keep a laboratory notebook/daily journal during this experience. The Internship Mentor will review and sign-off on the journal each week. The journal will form part of the basis for the student's final report and must be turned in to the student's Advisory Committee along with the final Internship Practicum Report.

At the end of the practicum, the student will write a report detailing the activities of the internship. The student's advisory committee must approve this report together with the laboratory notebook. The student must make a formal presentation to the advisory committee and defend the work at this time. A copy of the report and the journal must be submitted within the appropriate deadlines for graduation (see the Academic Calendar).

## **Proprietary Studies and Agreements**

The Internship Mentor will also work with the student to ensure that no proprietary information is contained within any public documents submitted by the student to UNTHSC. For example, if a student is involved with a proprietary drug study, without approval by internship partner, the name of the drug will not be identified in the Internship Practicum Proposal, the daily journal, or the Internship Practicum Report, but will be designated by a code as approved by the Internship Mentor. In addition, before beginning the internship, the student will sign confidentiality agreements as required by the internship partner.

## **Student Advisory Committee**

Each student will be assigned a minimum three-person Advisory Committee. This committee will include the major professor and two other members of the graduate faculty of UNTHSC. The Internship Mentor will also be included on the committee, if he/she is not already one of the three required individuals. The committee guides the student in determining internship goals, and approves the research/internship proposal. The advisory committee reviews the Research Proposal and final Internship Practicum Report, administers the final defense examination for the degree, approves the internship practicum report before submittal to the graduate school and determines the final grade for

the internship. The major professor serves as chair of the advisory committee. Advisory committees for Master of Science degree students must include at least two additional graduate faculty members.\*

Each student is required to meet with his/her advisory committee before beginning the BMSC 5697, Internship Practicum and as necessary until the final defense.

A degree plan listing all courses must be completed by the student, approved by the student's advisory committee and submitted to the graduate dean immediately following the first advisory committee meeting. All subsequent requests for degree plan changes must be approved by the student's advisory committee and submitted in writing by the major professor to the graduate dean. The Internship Practicum Report will consist of a detailed account of the activities performed during the internship as agreed upon in the research proposal. The students will be briefed before and during the internship as it relates to the required format. Previous examples can be consulted in Lewis Library. Please refer to Section "Guidelines for Final Internship Practicum Report and Defense" in this handout.

\* Individuals at the internship site with master's degrees or higher may be designated Category I graduate faculty in order to become members of the advisory committee.

### The Oral Defense

The student must file an "Intent to Defend" form in the graduate school no later than one month before the date of the oral defense. Each student must present his/her practicum work to the public in a formal lecture and then defend it in front of the Advisory Committee in private immediately after the public presentation. After submitting the practicum report to the Advisory Committee (at least 2 weeks prior to the defense), it is the student's responsibility to set up his/her oral defense. All members of the Committee must be in attendance. In addition, the student should reserve a room for the oral presentation and defense at least 1 month prior to the defense.

## ***Role of Advisory Committee Members***

### **Major Professor**

Each student will be assigned a major professor. The student should be made to feel that he/she may come to this mentor for advice/mentoring as needed. The major professor serves as chair of the advisory committee and thus, is responsible for overseeing the professional development of the student and assisting the student to optimize his/her entire educational experience. It is also the major professor's responsibility to read the student's research/practicum proposal and practicum report before these go to the entire advisory committee and give feedback on each to the student in a timely manner. The student will then use this feedback to revise the document in question before handing it to the other members of the committee.

The major professor gives the interim satisfactory/unsatisfactory practicum grades after consulting with the internship mentor and, along with the rest of the advisory committee, determines the final letter grade for the internship practicum.

## **Internship Mentor**

The student will work under the guidance and direction of an Internship Mentor at the internship site and thus, the Internship Mentor plays a critical role in the success of the internship experience. The Internship Mentor will be the immediate supervisor of the student at the internship site. This individual will be an employee of the internship site. In some cases, the internship mentor and the major advisor may be the same individual.

As part of the internship, the student will be required to keep a daily diary/log of his/her activities. The Internship Mentor will review and sign-off on the log each week. The diary will form part of the basis for the student's practicum report and must be turned in to the student's advisory committee along with the practicum report.

The Internship Mentor will be a member of the Advisory Committee and will attend all committee meetings and have input into all decisions regarding the Internship Practicum. The Internship Mentor provides oversight and guidance while the student is being trained. At no time during the internship will the delegation of tasks constitute a delegation of responsibility. The Internship Mentor remains responsible.

## **Expectations and Focus of the Internship Practicum**

The Internship Practicum (BMSC 5697 for the Biotechnology Program) should take place in an environment where the student is provided tools and experiences that will further the student's pursuit of a career in biotechnology or the life sciences. The student will work under the daily guidance of an onsite Internship Mentor and will be exposed to activities typical for professions utilizing biotechnology skills. Examples include, but are not limited to, wet laboratory techniques, statistical analyses, literature searching, and project management. Students will function and practice under the supervision of the Internship Mentor, and may assist or observe other site personnel.

As part of the Internship Practicum the student will be assigned to a project involving activities that will allow him or her to explore more fully aspects of biotechnology and its applications in an industrial setting. This project will form the basis of the student's Internship Practicum Report, which is described in more detail elsewhere in this handbook.

At the end of the program, it is expected that the student will possess the tools and confidence to pursue a career in biotechnology or life science either at an academic, industry or sponsor site.

## **Obtaining UNTHSC IRB Approval (if necessary)**

<https://www.unthsc.edu/research/protection-of-human-subjects/>

### *Procedures Involving Human Subject Research during Internship*

Any internship practicum project involving human subjects conducted by students of the UNTHSC must occur within an existing IRB-approved protocol.

Given the limited time frame associated with internships, students are not allowed to initiate and conduct their own “stand-alone” research project involving human subjects. Thus, students interested in being engaged as researchers/investigators/key personnel in human subject research (clinical trials, survey studies, experiments, etc.) must conduct such activities within a mentor’s or principal investigator’s already ongoing IRB-approved project. This is accomplished by simply being added as key personnel (engaged in research) to the existing protocol allowing the student to experience the operation of that research project at close hand.

Sites at UNTHSC: If the internship activity is conducted at UNTHSC and involves interaction with human subjects or their identifiable data, the activity must be specifically stated in the existing UNTHSC-IRB Approved protocol. In all cases the student must be added to the existing protocol as new key personnel and comply with all university and federal regulations as directed by the UNTHSC Office of Research Compliance (ORC).

The student is responsible for submitting the following items to the UNTHSC Office of Research Compliance:

- A signed memo from the student’s Biotechnology faculty advisor (Program Director) that includes: the student’s name, the title and IRB protocol number of the UNTHSC research project, and a statement acknowledging the student’s involvement as being engaged in research within the specified UNTHSC research project.
- Evidence that the student has been approved as key personnel on the UNTHSC research project.

Note that students are not allowed to create their own research project or otherwise investigate new elements “inside” an existing IRB-Approved protocol.

Other Sites: If the internship activity is conducted off-site (not at UNTHSC) and involves interaction with human subjects or their identifiable data, the project must fall within the framework of an existing protocol that has been reviewed and *approved by that site’s IRB*. In such cases the student must be added to the existing protocol as new key personnel and comply with all of those site’s policies as well as federal regulations.

In order for the university to verify that the student’s off-site internship activity is also compliant with UNTHSC’s adherence to federal regulations, it is the student’s responsibility and obligation to provide to the UNTHSC Office of Research Compliance written documentation of the other site’s IRB-approved protocol in which they are participating.

Specifically, the student is responsible for submitting the following items to the UNTHSC Office of Research Compliance:

- A signed memo from the Biotechnology faculty advisor (Program Director) that includes: the student’s name, the title and IRB protocol number of the “off-site” research project, and a statement acknowledging the student’s involvement in the specified “off-site” research project.
- A hard/soft copy of the “off-site’s” IRB approval letter

- A hard/soft copy of the “off-site’s” IRB-approved research documents (e.g., protocol synopsis, consent form, etc.)
- Evidence that the student has been approved as key personnel on the “off-site” research project

The Office of Research Compliance will contact representatives from that site to verify the student’s involvement in that IRB-Approved protocol. This step is to assure that the student is also following UNTHSC policy that all university personnel engaged in human subject research be compliant with federal regulations.

To facilitate student off-site human subject research involvement, the university will develop, wherever possible, inter-institutional agreements with the respective sites to allow for acceptance of these off-site IRB reviews in compliance with UNTHSC policy and procedures.

The Director of the CRM Program shall provide to the Office of Research Compliance a list of upcoming student internship site placements in a timely manner to facilitate a development of this external IRB acceptance process and documentation.

***Important Reminder:***

Note that under no circumstances shall a student become engaged in research involving human subjects for their practicum project until the UNTHSC Office of Research Compliance and/or the UNTHSC IRB has reviewed and acknowledged/approved that activity.

Any activity involving research with a human subject related to the student’s practicum project prior to UNTHSC ORC or IRB approval shall be considered research non-compliance and will be reported to the Dean, Graduate Studies in Biological Science, the Vice President for Research and the Division of Student Affairs for appropriate action.

## **Timetable for the Internship Practicum**

**The internship will take 2 consecutive long semesters (minimum 32 weeks, 40 hrs/week).**

<u><b>Date</b></u>	<u><b>Task</b></u>
May 1	Deadline for submission to GSBS for approval of any student-identified internship opportunities.
August	Assignment of internship site and advisory committee
August	Pre-Internship Orientation Meeting
End of August	Student contacts internship site and committee members; student arranges a committee meeting at the internship site to discuss internship and practicum project.

Fall-Spring Semesters On-Site Internship for 9 months (6 SCH fall; 6 SCH spring).

First 4 weeks Student prepares Internship Practicum Proposal (the student will be working at the site in addition to writing the proposal).

Middle of November Major Professor and Internship Mentor review draft Internship Practicum Proposal. Edited draft is sent to other Committee Members for review.

End of November Advisory committee meets to review/approve final research proposal. Agreement can be obtained via email if committee agrees.

By November 30 Internship Practicum Proposal completed and signed by all Committee Members and filed in the Graduate School.

End of Fall Semester Major Professor enters Fall Semester Grade (“S” or “U”)

Student checks deadline and file for graduation. (Student submits form “Intend to Graduate”)

February Student calls an advisory committee meeting early in October to go over his/her proposed practicum report outline (or may meet with members individually). Student starts drafting actual Practicum Report while continuing to intern at the site. Student and Committee sets defense date.

Student starts drafting actual Practicum Report while continuing to intern at the site.

Student schedules room and technical services.

Feb/March Student files ‘Intent to Defend’ form in the Graduate School (at least 1 month prior to defense).

March/April Major professor reviews first draft of report. Other Committee Members review Practicum Report no later than 2 weeks prior to scheduled defense. Student sets defense date and schedules room and technical services. The “Intent to Defend” form must be filed at least 1 month prior to defense date in the Graduate School.

April Student focuses 100% on completion of Internship Practicum Report, preparing presentation and practicing presentation with Major Professor

End of April Student defends Internship Practicum Report. All members of Advisory Committee and Program Director MUST be present.

Immediately Following defense

Student makes final edits to Internship Practicum Report and submits to the Graduate School.

Major Professor files letter grade

Comply with last day to complete all requirements for spring confirmation of degree.

## **Internship Proposal and Final Practicum Report**

The Internship Practicum Report will consist of a detailed account of the activities performed during the internship as agreed upon in the Internship Practicum Proposal. The students will be briefed before and during the internship as it relates to the required format. Please refer to Section “Guidelines for Final Internship Practicum Report and Defense” in this handout.

### ***Oral Seminar and Defense***

The student must file an “Intent to Defend” form in the graduate school no later than one month before the date of the oral defense. Each student must present his/her practicum work to the public in a formal lecture and then defend it in front of the Advisory Committee in private immediately after the public presentation. After submitting the practicum report to the Advisory Committee (at least 2 weeks prior to the defense), it is the student’s responsibility to set up his/her oral defense. All members of the Committee must be in attendance. In addition, the student should reserve a room for the oral presentation and defense at least 1 month prior to the defense.

Following the defense, the major professor together with the other members of the committee will assign a Pass/Fail for BMSC 5395 or BMSC 5697 based on guidelines outlined in the [MS Defense Scoring Rubric](#). The student must submit the signed [Report of Final Comprehensive Examination \(Defense\)](#) form to the GSBS office. A copy of the approved Thesis must be submitted to the graduate school before graduation in accordance with the graduate school rules and time limits for the Master’s thesis. (<http://www.hsc.unt.edu/education/gsbs/gradinstructions.cfm>)

## **Research Proposal Guidelines for Internship Practicum Proposal**

can be found at <https://www.unthsc.edu/graduate-school-of-biomedical-sciences/forms-and-guidelines/>

## **Guidelines for the Final Internship Practicum Report and Defense**

can be found at <https://www.unthsc.edu/graduate-school-of-biomedical-sciences/graduation-instructions-and-forms/>

### ***Turnitin***

The Graduate School of Biomedical Sciences supports initiatives that foster students’ academic progress. Specifically, the GSBS has launched efforts that facilitate mastery of program competencies, while ensuring academic integrity. UNTHSC has contracted with Turnitin.com for plagiarism detection services. Turnitin helps prevent plagiarism by comparing student papers to sources such as commercial databases of online journal articles and periodicals, other student submissions, and current or archived information on the Internet.

Students will be required to submit their Final Practicum Report/Thesis to *Turnitin* (an evaluative software service not affiliated with UNTHSC) to receive feedback on originality of student's work. To facilitate the submission process, the instructor will set up the required written assignments in *Turnitin* which can be accessed through CANVAS. This allows students to submit written assignments and obtain originality reports. The course written assignment set up in *Turnitin* will allow the Instructor to monitor submissions for all required assignments and view results. Students should go to course CANVAS webpage to submit assignments.

The **Similarity/Originality score must be less than or equal to 15%** (not including the Bibliography). The use of this tool is designed to be a formative process, allowing students to gain/improve experience in writing skills and proper referencing. An additional goal allows students to evaluate and synthesize concepts covered in the course that need to be reflected within the written paper. Turnitin compares the content in the paper against text on the Internet, other student submissions, and commercial databases. An Originality Report for each student submission is generated showing any text that appears to be duplicated. The instructor can use this information to determine if the duplicated text is plagiarized. The instructor remains the arbiter of what constitutes plagiarism. Instructions on how to submit the report will be sent to all students.

## **Criteria for Consideration of the Internship Practicum Grade Assignments**

BMSC 5697 Internship Practicum is an approved course offered through the Department of Biomedical Sciences, Graduate School of Biomedical Sciences and is a requirement for certain Master's degree programs. The student will receive either an "Unsatisfactory (U)" or a "Satisfactory (S)" for all semesters enrolled in the practicum, until the semester the student graduates. At the end of this semester, when the student completes all requirements for the practicum, he/she will receive a letter grade. Only this letter grade will contribute to the overall GPA. The U/S grades will not be figured into the overall GPA.

The final letter grade is a reflection of performance throughout the internship, public seminar, and private oral defense as well as quality of the final practicum report. The letter grade is determined by the entire Advisory Committee after conclusion of the defense, whereas the practicum grade(s) prior to the final letter grade is (are) determined by the Major Advisor and Onsite Mentor.

- Suggested rating scale for the final practicum semester grade: Excellent = A; Above Average = B; Average-Poor = C; Failing = F
- For the practicum grades prior to the last semester: A "Satisfactory (S)" should reflect A/B/high C work; An "Unsatisfactory (U)" indicates low C and below.

### ***Suggested Criteria***

1. Attendance
2. Met all requirements in a timely manner, including filing of appropriate forms
3. Observed accepted standards of professional behavior, e.g. academic integrity, proper behavior in dealing with the public, dress etc.



4. Regularly and actively participated in the activities, both research and educational, of the practicum
5. Commitment, drive, determination, perseverance
6. Creativity, imagination, in terms of problem interpretation as well as problem design
7. Technical ability
8. Keeps up with and understands the literature
9. Effectively completes tasks
10. Ability to write clearly
11. Ability to speak clearly and answer questions knowledgeably
12. Leadership qualities
13. Organizational skills (e.g. good record keeping and well prepared notebooks) and time management skills
14. Appropriate demonstration of independence
15. Overall depth of understanding of the practicum problem and its significance to the general field of study
16. Pays attention to detail