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Biotechnology Program

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Discipline Website: Biotechnology program

The Biotechnology program at UNT Health Science Center (UNTHSC) is a specialized master's program designed to train individuals for careers in industry and research by providing the tools and experience needed for highly technical positions in emerging biotechnology companies, life science organizations, and research institutions. The program is usually completed in no more than two (2) years. The program is completed online except for a twelve-month internship practicum experience. It is ideal for students to balance career and family responsibilities with enrollment.
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 the 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 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 24 SCH are a laboratory Internship Practicum or Biotechnology Capstone Project. The program is usually completed in two years. Students are admitted in the fall, spring, or summer semester.

As part of the Biotechnology Program, all students will complete a 3-semester (42 weeks) Internship Practicum in Biotechnology or Capstone Project in Biotechnology and use this experience to write a detailed Internship Practicum Report pursuant to receiving the Master of Science degree. Each student is responsible for completing the Master of Biotechnology Program requirements according to the procedures that follow. Each item must be completed in the sequence and time period indicated. Forms are subject to revision and should be obtained from the School of Biomedical Sciences.

Opportunities for Graduates in Biotechnology

Biotechnology in the United States is a dynamic industry with many employment opportunities. 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. As a result, the biotechnology industry continues to flourish nationwide. The total number of biotechnology companies is increasing, but employment in the biotechnology field also continues to grow 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 design, develop, and use tools for gaining information about biotech procedures, implementing these tools, and analyzing 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 troubleshoot them, ensuring optimal client returns on investment. An Industry Researcher is a professional who helps define the range and scope of new research areas.

Program Requirements

The requirements for admissions and graduation are listed in the SBS Degree Programs chapter of the UNTHSC Catalog.

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

By the end of the second 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 SBS Office of Admissions and Services. A degree plan must also be filed with the SBS Office of Admissions and Services.

Students must be in good academic standing before being 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.

After the online course work has been completed (end of the year 1), the student will enroll in the Internship Practicum in Biotechnology (BMSC 5697) or Capstone Project in Biotechnology (BMSC 5330). The internship will be at a site previously approved by the advisory committee. During this time, the student will gain experience in tasks associated with the application of biotechnology in an industrial setting. The student is responsible for transportation to and from the site, whether on-campus or off-campus. The student should not 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.

After the practicum, the student will present his/her work as oral and written reports. The verbal (online

format) 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 the practicum report and internship daily journal to the major professor for review prior to the public seminar. The major professor must approve the internship practicum report before it is distributed to the committee members by the student. The final written report should be given to the committee no later than two weeks before the formal defense. At this time, the committee will either approve/or not approve the work of the internship 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 major professor will assign a letter grade to the practicum with the other committee members. 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 SBS 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 18-24 months.

Dept	*Course Number*	*Title*	*SCH*	*Semester to be Completed*
FALL Semester				
HMAP	5300	Health Management and Policy I	3	Fall 1 (8 wks)
HMAP	5328	Organizational Leadership	3	Fall 1 (8 wks)
BMSC	6201	Fundamentals in Biomedical Sciences I	2	Fall 2 (8 wks)
BMSC	6202	Fundamentals in Biomedical Sciences II	2	Fall 2 (8 wks)
BMSC	5170	Laboratory Techniques (Biochemistry)	1	Fall (16 wks)
BMSC	5165	Industry Practice and Lab Management	2	Fall (16 wks)
		Subtotal	***13***	
SPRING Semester				
BMSC	6203	Fundamentals in Biomedical Sciences III	2	Spring 1 (8 wks)
BMSC	6204	Fundamentals in Biomedical Sciences IV	2	Spring 1 (8 wks)
HMAP	5312	Process Improvement	3	Spring 2 (8 wks)
HMAP	5306	Health Finance 1	3	Spring 2 (8 wks)
BMSC	5170	Laboratory Techniques (Microbiology)	1	Spring (16 wks)
		Subtotal	***11***	
SUMMER Semester				
BMSC	5300	Biostatistics for Biomedical Sciences	3	Summer (10 wks)
BMSC	5160	Biomedical Ethics	1	Summer (10 wks)
BMSC	5315	Scientific Communications	2	Summer (10 wks)
BMSC	5180	Intro to Entrepreneurship	1	Summer (10 wks)
BMSC	5170	Laboratory Techniques (Biotechnology)	1	Summer (10 wks)
		Subtotal	***8***	
		Total	***32***	

On-campus or off-campus: Internship Practicum (BMSC 5697) 24 SCH with practicum report/defense. Total Semester Credit Hours (SCH) = 56 SCH

Online option: Biotechnology Capstone Project (BMSC 5330) 24 SCH with capstone project report/defense. Total Semester Credit Hours (SCH) = 56 SCH

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. It 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 due to errors in preparation.

All Course Descriptions can be found in the Catalog

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 or Capstone Project in Biotechnology

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 occur either on-campus or at an approved off-campus site in the Dallas-Fort Worth Metroplex and/or, in some cases, at a site in other parts of the state or country. Students will be expected to provide for their transportation and housing needs during the internship experience.

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

- SBS Pre-Internship Agreement
- Complete Drug Testing Panel
- Criminal Background Check
- Collaborative Institutional Training Initiative training, known as a CITI Training (if applicable)
- Research Conflict of Interest Training and Disclosure

On the beginning of the second year, the student will enroll in Internship Practicum (BMSC 5697) for 6-9 SCH each semester. Internship Practicum provides a hands-on training experience for the Biotechnology student. The internship takes approximately 3 semesters (42 weeks, 40 hrs/week), during which the student will be working under the direct supervision of an internship mentor at the internship location.

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

HSC does not offer any remuneration to the student when they are enrolled in BMSC 5697 Internship Practicum and the student should not expect to be paid as an intern. The student should not 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 retain a student during or after the internship or graduation. Suppose the site offers to remunerate the intern while he or she is registered in BMSC 5697. In that case, the student will not attempt to collect unemployment compensation after completion of BMSC 5697 or the master's program.

A formal plan (research proposal) describing how the practicum project 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 School of Biomedical Sciences' website.

Students will present their work as oral and written reports at the end of the Internship Practicum

(BMSC 5697). 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 School of Biomedical Sciences 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 will assign a letter grade to the practicum with the other committee members. 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 SBS 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 internship activities. The student's advisory committee must approve this report together with the laboratory notebook. In addition, the student must make a formal presentation to the advisory committee and defend the work at this time. A report and journal copy 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 School. 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 the internship practicum requirements, 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.

Description of the Capstone project

The capstone project is an additional/alternative component of the online Biotechnology program that will replace the requirement of an internship practicum. The students will enroll for 6-9 SCH each semester (3 semesters) for a total of 24 SCH for their capstone project. The capstone project aims to equip students with the knowledge and skills required to contribute to the biotechnology field. This individualized scholarly work may consist of a detailed case study, literature review and data analysis project, clinical research project, or clinical quality improvement project. Students will be paired with a mentor from UNTHSC or our partner biotechnology or health care organizations to oversee their work. At the beginning of the capstone, the mentor and student will identify a topic or a specific problem to address or investigate. They will then construct an action plan or research proposal and the student will conduct the data analysis/literature review. At the end of the project, the student will complete a project report and do an oral presentation of the project.

Duration and Time of the Internship/Capstone project

The internship / capstone project takes minimum 40 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 their program, the student may register for additional hours of BMSC 5697 Internship Practicum. Students will be available 5 days a week during the Internship Practicum, usually from 8:00 a.m. until 5:00 p.m.; however, each internship site will determine the exact work schedule.

Activities during the Internship/Capstone project

During the Internship/Capstone project, 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. In addition, 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 internship activities. 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 an 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 for the Internship/Capstone projects

Each student will be assigned a minimum three-person Advisory Committee. This committee will include the major professor and two other graduate faculty members of HSC. The Internship Mentor will also be included on the committee if they are 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 their 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. The student's advisory committee must approve all subsequent requests for degree plan changes and submitted in writing by the major professor to the graduate dean. The Internship Practicum Report will include 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 regarding 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 as graduate faculty in order to become members of the advisory committee.

Defense

The student must file an “Intent to Defend” form in the school of biomedical sciences no later than one month before the oral defense date. Each student must present their 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 their 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 before the defense.

Role of Advisory Committee Members

Major Professor

Each student will be assigned a major professor. The student should feel that they 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 student's professional development and assisting the student to optimize their entire educational experience. It is also the major professor's responsibility to read the student's research/practicum proposal and practicum report before they go to the whole advisory committee and promptly give feedback on each to the student. The student will then use this feedback to revise the document in question before handing it to the other members of the committee.
After consulting with the internship mentor, the major professor gives the interim satisfactory/unsatisfactory practicum grades. Then, the rest of the advisory committee determines the final grade for the internship practicum.

Internship project/Capstone project Mentor

The student will work under the guidance and direction of an Internship Mentor at the internship site; thus, the Internship Mentor plays a critical role in the success of the internship experience. The Internship Mentor will be the student's immediate supervisor at the internship site. Therefore, this individual will be an employee of the internship site. Sometimes, the internship mentor and the major advisor may be the same.
As part of the internship, the student must keep a daily diary/log of their 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, 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 to further the student's pursuit of a career in biotechnology or the life sciences. The student will work under an onsite internship mentor's daily guidance 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, 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 Practicum

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) 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.

Students are not allowed to create their research project or 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 the acceptance of these off-site IRB reviews in compliance with UNTHSC policy and procedures.
The Director of the Biotechnology Program shall promptly provide to the Office of Research Compliance a list of upcoming student internship site placements to facilitate the development of this external IRB acceptance process and documentation.

Important Reminder:

Note that under no circumstances shall a student engage 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, the Vice President for Research and the Division of Student Affairs for appropriate action.

Internship/Capstone project Proposal and Final Practicum/Capstone project Report

The Internship Practicum Report will include a detailed account of the activities performed during the internship as agreed upon in the Internship Practicum Proposal. In addition, the students will be briefed before and during the internship regarding the required format. Please refer to Section "Guidelines for Final Internship Practicum Report and Defense" in this handout.

Seminar and Defense

The student must file an "Intent to Defend" form in the graduate school no later than one month before the oral defense date. 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.

Following the defense, the major professor, together with the other members of the committee, will assign a Pass/Fail for BMSC 5697 or BMSC 5330 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 SBS office. A copy of the approved Thesis must be submitted to the School of Biomedical Sciences before graduation in accordance with the rules and time limits for the Master's thesis.

Research Proposal Guidelines for Internship Practicum/Capstone project Proposal can be found at https://www.unthsc.edu/graduate-school-of-biomedical-sciences/forms-and-guidelines/

Guidelines for the Final Internship Practicum/Capstone project Report and Defense can be found at

Turn It In

The School of Biomedical Sciences supports initiatives that foster students' academic progress. Specifically, the SBS 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/ Capstone project report to Turnitin (an evaluative software service not affiliated with UNTHSC) to receive feedback on the originality of students' 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 enable the Instructor to monitor submissions for all required assignments and view results. Students should go to the course CANVAS webpage to submit assignments. The Similarity/Originality score must be less than or equal to 15% (not including the Bibliography). This tool is designed to be a formative process, allowing students to gain/improve their experience in writing skills and proper referencing. An additional goal will enable 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 / Capstone project Grade Assignments

BMSC 5697 Internship Practicum and BMSC 5330 Capstone project are approved courses offered through the School of Biomedical Sciences and are required for specific Master's degree programs. The student will receive either an "Unsatisfactory (U)" or a "Satisfactory (S)" for all semesters enrolled in the practicum / capstone project until the semester the student graduates. At the end of this semester, when the student completes all practicum / capstone project requirements, they 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 / capstone project, public seminar, and private oral defense, as well as the quality of the final practicum / capstone project report. The entire Advisory Committee determines the letter grade after the conclusion of the defense. In contrast, the practicum / capstone project 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 works; An "Unsatisfactory (U)" indicates low C and below.

Suggested Criteria

1. Attendance.
2. Met all requirements in a timely manner, including the 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 research and educational activities of the practicum.
5. Commitment, drive, determination, perseverance.
6. Creativity and 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.