



Program Assessment Report (PAR)

Anatomy (ANAT) Masters Degree

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ACADEMIC YEAR COVERED BY THIS REPORT: 2021-2022

I. PROGRAM LEARNING OUTCOMES

MS in Anatomy program has two different options; students can choose course/teacher option or thesis option. Some learning outcomes might differ between two options. After completing the MS in Anatomy program – course/teacher options- graduates will be able to 1. Demonstrate depth of understanding of human anatomy, human physiology/neuroscience and related anatomy disciplines. 2. Teach anatomical sciences at a professional level. 3. Critically read and analyze data from scientific papers. 4. Develop skills, which prepare students to continue study to more advanced degrees (such as Ph.D., M.D., and D.O., D.D.S., P.A. or the equivalent). After completing the MS in Anatomy program - thesis option, graduates will be able to 1. Demonstrate depth of understanding of human anatomy, human physiology/neuroscience and related anatomy disciplines. 2. Complete a novel work or project that contributes to field of anatomical sciences and produce competent and professional writing through planning, drafting, revising, and editing a thesis project. 3. Develop skills, which prepare students to continue study to more advanced degrees (such as Ph.D., M.D., and D.O., D.D.S., P.A. or the equivalent).

II. PROCEDURES USED FOR ASSESSMENT

A. Direct Assessment

1. Demonstrate depth of understanding of human anatomy (ANT 7110), human neurobiology (ANT 7310), human physiology (PN 7050) and related anatomy disciplines. All students in MS in Anatomy program (both options) are required to complete three core courses Human Gross Anatomy- ANT 7110 (6-credit hrs.), Human Neurobiology - ANT 7310 (4-credit hrs.) and Human Physiology- PN 7050 (4-credit hrs.). The average percentage score and calculated GPA after completion of the course were used as a direct assessment of this learning outcome. 2. Teach anatomical sciences at a professional level. All students in MS Anatomy program (both options) have a chance to teach anatomical sciences

while in the program. They taught anatomy sciences courses at undergraduate level, graduate level and in the medical school. Evaluations of their performance was used as a direct assessment of this learning outcome. Additionally, student's success (acceptance for the faculty teaching positions) was monitored after completion of MS in Anatomy program. 3. Critically read and analyze data from scientific papers. Students who chose course/teaching option in MS in Anatomy program are required to complete ANT 6030 - Biomedical Article Review course and ANT 6040 - Biomedical Experimental Design course. The goals of these courses are to write a scientific review article, design an experimental approach to test their hypothesis and predict the results that would support their hypothesis, as well as write a scientific paper and give a seminar on the chosen topic. In academic year 2021-2022, 18 graduate students completed these courses. 4. Develop skills, which prepare students to continue towards advanced degrees (such as Ph.D., M.D., and D.O., D.D.S., P.A. or the equivalent). Most of the students in MS in Anatomy program intend to continue their education in the health professional school or Ph.D. programs. Our program provides training for students to obtain their goals. Direct assessment of this learning outcome was the number of graduates who were accepted into professional schools or programs. 5. Complete a novel work or project that contributes to field of anatomical sciences and produce competent and professional writing through planning, drafting, revising, and editing a thesis project. Students who choose the Thesis option in MS in Anatomy program are required to work with a faculty supervisor in one of the research laboratories in or outside of WSU. They must complete a project, write a thesis paper, and complete it with an oral defense. Students performance is assessed by the student's committee members evaluations based on the rubrics.

B. Scoring of Student Work

1. Demonstrate depth of understanding of human anatomy, human physiology/neuroscience and related anatomy disciplines. Scoring was completed by faculty members, who taught each of the core courses. Data were collected after each exam, including final examination, and the average percentage and GPA was calculated at the end of the courses. 2. Teach anatomical sciences at a professional level. Data were collected by the program coordinator and was based on one question answered by students taught by GTAs in the middle and in the end of the course. Question Please rate the overall effectiveness of your GTA. Rating 5- outstanding, 4- good, 3- average, 2- fair, 1-poor. Success of graduates who choose teaching option was scored by their acceptance to the teaching positions after graduation. 3. Critically read and analyze data from scientific papers. All students who chose the thesis option must take the Principles of Biomedical Research course, which includes a rigorous analysis of scientific literature. Furthermore, the writing of a thesis involves detailed analysis of scientific articles related to the thesis topic. Indeed, the entire design of the thesis project requires the student to have a thorough understanding of relevant literature in order to effectively design a series of experiments that they can test a novel hypothesis with. 4. Develop skills, which

prepare students to continue study to more advanced degrees (such as Ph.D., M.D., and D.O., D.D.S., P.A. or the equivalent). Success of our graduates who decided to continue study to more advanced degree was scored by their acceptance to the professional school or programs after graduation. The data are collected by program coordinator and are based on student's willingness to share this information with us. 5. Complete a novel work or project that contributes to field of anatomical sciences and produce competent and professional writing through planning, drafting, revising, and editing a thesis project. Specific rubrics were developed to score this learning outcome. They are used by student's thesis committee members. The scores are listed below Written and Oral DEFENSE Element or Criteria Exemplary (4) Proficient (3) Partially Proficient (2) Unsatisfactory (1) Explanation of Issues The rubric will be attached at the end of this report.

C. Indirect Assessment

Although we didn't use any of indirect assessment tools in 2020-2021 academic year, we know through several conversation with students, that they perceive the program as challenging, but rewarding and extremely helpful for their future scientific or professional career. Our graduates very often promote our program and recruit new students, by telling them how excellent the program is. In the future we will develop the survey, which would help us to do an indirect assessment more efficiently.

III. ASSESSMENT RESULTS/INFORMATION:

Demonstrate depth of understanding of human anatomy, human physiology/neuroscience and related anatomy disciplines. Based on average percentage score and calculated GPA after completion of the three-core course Teach anatomical sciences at a professional level. Based on evaluations of GTAs (student-teachers) performance, and number of graduates who were accepted for teaching faculty positions after graduation. Critically read and analyze data from scientific papers. Based on final grade in ANT 6030 and ANT 6040 courses. Develop skills, which prepare students to continue study to more advanced degrees (such as Ph.D., M.D., and D.O., D.D.S., P.A. or the equivalent). Based by the number of graduates who were accepted into professional schools or programs. Complete a novel work or project that contributes to field of anatomical sciences. Produce competent and professional writing through planning, drafting, revising, and editing a thesis project. Based on students' performance assessment during thesis defense. Committee members use the rubrics.

1. Demonstrate depth of understanding of human anatomy (ANT 7110), human neurobiology (ANT 7310), human physiology (ANT6100), and related anatomy disciplines. Student Knowledge of Human Anatomy, 21 students completed the course GPA=3.4; 81%=B Percentage and number of students is new. A=6, B=7, C=5, D=3 Student Knowledge of Human Neurobiology, 24 students completed the course GPA=3.6; 89.74% Student Knowledge of Advanced Embryology Human Physiology 7 students completed the course GPA= 3.4; 84.84% 2. Teach anatomical sciences at a professional level. During academic year 2021-2022 seven students accepted GTA positions. Overall average for six GTAs performance was 4.56 (5 was the best score). One graduate who choose teacher option was accepted for faculty-teaching position. 3. Critically read and analyze data from scientific papers. In academic year 2021-2022, 17 graduate students completed ANT 6030 and ANT 6040 courses. The average GPA=A average percentage 96%. 4. Develop skills, which prepare students to continue study to more advanced degrees (such as Ph.D., M.D., and D.O., D.D.S., P.A. or the equivalent). Among 4 graduates in the 2021-2022 academic year 2 was accepted into medical school, 1 – accepted teaching positions, 1 applying/taking MCAT for medical school. In addition 10 Anatomy Bridge students completed the Anatomy Certificate and were accepted into BSOM July 2022. 5. Complete a novel work or project that contributes to field of anatomical sciences and produce competent and professional writing through planning, drafting, revising, and editing a thesis project. There were not students who completed thesis option this academic years. Student's are evaluated in the following areas: Oral Thesis: Introduction Terminology Logic Underlying Presentation Conclusions Written Thesis: Explanation of Issues Evidence Influence of context and assumptions Conclusions and related outcomes

All scores are the average GPA/percentage students received after completion respective core courses. They indicate that students achieved high level of understanding of anatomy disciplines. The high-ranking evaluation score for GTAs and acceptance our graduates for faculty position indicate that students developed essential skills to teach anatomical sciences. High score in those intense writing courses indicate that students possessed ability to critically read and analyze scientific papers. Although it is difficult to monitor the next step career of 100% students, the provided numbers indicate that our program is a good preparation/training for those who wants to continue their education on the higher level. All students who completed thesis option in MS in Anatomy program possessed ability complete independent research project and write scholarly paper based on the results.

IV. ACTIONS TO IMPROVE STUDENT LEARNING

Information regarding the assessment has been shared between faculty in the graduate curriculum committee meetings. During last few years several changes were made in the program curriculum. One of which was to eliminate the comprehensive oral exam and scholarly project and implement both the ANT 6030 and ANT 6040 courses. These courses assess student's ability to critically read and

analyze data from scientific papers. In the ANT 6040 course student's must be able to orally present their research findings. In the future, The NCBP Graduate Curriculum Committee plans to develop a more efficient assessment tools.

V. SUPPORTING DOCUMENTS

Additional documentation, when provided, is stored in the internal Academic Program Assessment of Student Learning SharePoint site.