Program Assessment Report (PAR)

Anatomy (ANAT) Masters Degree

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ACADEMIC YEAR COVERED BY THIS REPORT: [AcademicYear]

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. 3. Produce competent and professional writing through planning, drafting, revising, and editing a thesis project. 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).

II. PROCEDURES USED FOR ASSESSMENT

A. Direct Assessment

1. Demonstrate depth of understanding of human anatomy, human physiology/neuroscience and related anatomy disciplines. All students in MS in Anatomy program (both options) are required to complete three core courses Human Gross Anatomy (6-credit hrs.), Human Neurobiology (4-credit hrs.) and Advanced Embryology (3-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. During academic year 2019-2020 thirteen students accepted

GTA position. 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 monitoring 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 goal of those courses is 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 2019-2020, 17 graduate students completed these courses. 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). 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 decent training for it. 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. 6. Produce competent and professional writing through planning, drafting, revising, and editing a thesis project. Students who choose Thesis option in MS in Anatomy program are required to work with the 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 a oral defense. Students performance was assessed by the student's committee members evaluation 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 done by faculty members, who taught core courses. Data were collected after each exam, including final, and the average percentage and GPA was calculated at the end of the course. 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 have to take Principles of Biomedical Research course, which includes 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. 6. 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 2019-2020 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.

Student Knowledge of Human Anatomy, GPA=3.4; 85.42% Student Knowledge of Human Neurobiology, GPA=3.6; 89.74% Student Knowledge of Advanced Embryology GPA= 3.4; 84.84% Overall average for 13 GTAs performance was 4.78 (5 was the best score). Both graduates who choose teacher option were accepted for faculty-teaching positions. In academic year 2019-2020, 17 graduate students completed ANT 6030 and ANT 6040 courses. The average GPA=A average percentage 98%. Among 17 graduates in 2019-2020 academic year 7 were accepted into medical school, 2 –

accepted into PA school, 1 – Dental School,2 – accepted teaching positions, 1 – accepted research position. 3 applying/taking MCAT for medical school, The overall performance of 8 students who completed thesis option in MS Anatomy program Oral Thesis Introduction – 3.56 Terminology – 4.0 Logic Underlying Presentation – 3.5 Conclusions – 4.0 Written Thesis Explanation of Issues – 3.7 Evidence – 3.57 Influence of context and assumptions – 3.5 Conclusions and related outcomes – 3.7

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 implement ANT 6030 and ANT 6040 courses, which assess student's ability to critically read and analyze data from scientific papers (this way the new learning outcome has been create). In ANT 6040 student's must be able to orally present their research findings. In the future, graduate curriculum committee will work to develop more efficient assessment tools.

V. SUPPORTING DOCUMENTS

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