

**NECHE INVENTORY OF EDUCATIONAL EFFECTIVENESS INDICATORS
GRADUATE PROGRAMS
(PSM IN BIOTECHNOLOGY – 2018-19)**

DEGREE GRANTING PROGRAM NAME	(1) List ONLY the program learning objective(s) assessed during the current reporting period	(2) For each learning objective listed in column (1), other than GPA, what data/evidence was used to determine that graduates have achieved the stated objectives? (e.g., capstone assignment, portfolio review, licensure examination)	(3) What were the results/outcomes/findings/conclusion(s) of the assessment? Explain results/findings/conclusions for each program learning objective listed in column (1)	(4) Who interprets the evidence? Describe the process (e.g. annually by the curriculum committee).	(5) What changes/improvements have been made as a result of using the data/evidence (3)? Link discussion in this column with a learning objective (1) and the results of assessing that objective (3)	(6) Date of most recent program review
Professional Science Master's in Biotechnology	Ethics & decision making (PLO: 3)	Data from a Directed case study was collected over this period from the capstone and Leadership course to support conclusion on this PLO. They have included (1) student training set of attributes important for the PLO using a modified AACU Values Rubric analysis, (2) capstone projects competence review before and after	(1) Using a rubrics modified from the ethical reasoning rubric of the AACU, students from the Leadership course and Capstone Internship course were administered with a case study to evaluate on their ethical decision making capabilities. Based on the direct case study scores with the modified rubric scheme, the following observation has been obtained. A scores of 25 (N=1), 40 (N=2), 45 (N=1), 50 (N=1), 55 (N=2), 70 (N=2), 80 (N=5), 90 (N=1) were recorded. With the AACU classification; 1 student will be below the benchmark (score of 25), 4 students meet milestone	(a) Program Director (Dr. Sunny Tam) and Faculty member (Dr. Simon Fricker) have discussed on the progress of the students, and the chosen value attributes to examine on all PLOs including Ethics and Decision Making. (b) For capstone internship projects, both	For future assessment and report, we would like to incorporate additional direct testing & measurement to better assess all the PLOs. A committee of faculty members and the program director will meet and design on the direct case studies. We will continue to utilize the current AACU values rubric to	The first 5 years' program review has not yet completed. We expect a program review in 2021.

		<p>completion of reports that has incorporated AACU value rubrics, and (3) faculty confirmations of student performance on PLO.</p>	<p>of acceptance (score between 25 and 50), 4 students meet milestone of high acceptance (score between 50 and 75), and finally 6 students meet the highest capstone level (score between 75 and 100). Out of the 15 students, 7% of students did not pass the acceptance level. 27% of students have passed the acceptance level. 27% of students have exceeded the acceptance level. 40% of students have exceeded our expectation of their ethical decision making. For future program progress, we hope that all the students can score above 50 or exceed the high acceptance level.</p> <p>(2) For 4 students who have completed the 400 hours Capstone internship study over this period, careful direct evaluation of their progress on ethical reasoning were completed before and after their studies. Based on the capstone project evaluations, the ethical decision concept among the students were improved with 75% of students achieving the capstone level; while the remaining 25% has</p>	<p>the Program Director and project mentors interacted regularly to discuss on the student progress and reviewed all the final reports before and after the capstone internship studies.</p>	<p>assess development under each PLO. For future capstone internship projects, we will continue to hold honest discussion and evaluation before and after the study with the students, faculty members and industry mentors. If any student will complete additional national professional licensure examination, we will also include the result as part of our annual program report.</p>	
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Insert URL of the program web page where Program Learning Objectives for this program are published (NECHE requires this as part of being transparent to stakeholders): https://www.framingham.edu/Assets/uploads/about-fsu/office-of-assessment/_documents/assessment-plan-professional-science-masters.pdf