

Spring 2021

BME Student/Faculty Guide for Course Selection (Machine Learning content)

Below is a list of courses (Engineering and Computer Science) that have Machine Learning (ML) content. In some cases, there is overlap of content, so BME students and faculty should use this document a guide for selecting (and approving) courses for Plans of Study.

ENGR:2995 -- Intro AI and Machine Learning for AI

This is an introductory level Machine Learning (ML) course offered by College of Engineering (COE). If you have taken any other COE ML course, you cannot take this course due to "regression." This course can be taken as an elective towards the BME degree requirements.

ECE:5450 / IGPI:5450 Machine Learning

This course is the next course to take in sequence after ENGR:2995.

CEE:4511 Scientific Computing and Machine Learning

ME:4111 Scientific Computing and Machine Learning

These two courses have overlapping content with each other. These two courses do NOT overlap content with ECE:5450 Machine Learning. Only ONE of the two course can be taken as an elective towards the BME degree requirements.

CS:4480 / ECE:4480 Knowledge Discovery (This is an Engineering Topic)

This course can be taken as an elective towards the BME degree requirements; however it does have overlap of content with ENGR:2995. Given content overlap, only ONE of the two courses (ENGR:2995 or ECE:4480) can be taken as an elective towards the BME degree requirements. Engineering students should take ENGR:2995, as a required course. ECE:4480 can count towards "engineering topics" and elective topics as long as ENGR:2995 has not been previously taken. If ENGR:2995 has been taken, students will not receive credit for taking ECE:4480. Students that take ECE:4480, followed by ENGR:2995 would not receive credit for ENGR:2995.

ISE:4172 Big Data Analytics

CS:4740 Large Data Analysis

These two courses have some overlap with each other. Only ONE of the two course can be taken as an elective towards the BME degree requirements.

ISE:6380 Deep Learning

This course can be taken as an elective towards the BME degree requirements.

CS:5430 Machine Learning

This course is considered to be overlapping with ECE:5450 Machine Learning. Engineering students should take ECE:5450. This course is RESTRICTED to only CS graduate students, so engineering students cannot register for this course.

ECE:5450 Pattern Recognition

This course has the same content as ECE:5450 -- Machine Learning. The name was changed from "Pattern Recognition" to "Machine Learning" in 2019, and Pattern Recognition is unlikely to be offered again. Students that took Pattern Recognition CANNOT take ECE:5450 -- Machine Learning.

MSCI:7000 / IGPI:7000 Management Sciences Topics (Interpretable Machine Learning and Explainable Artificial Intelligence)

Course is "intended" for PhD students. This course is a survey course on current topics and papers related to machine learning. This course can be taken as an elective towards the BME degree requirements; HOWEVER, instructors of this course have indicated that this course is too advanced for undergraduates. Students would need permission from the instructor to take this course.

BIOC:3310 / CBIO:3310/ MMED:3310 Practical Data Science & Bioinformatics

This course is intended for students with NO computational background and is also intended for students in life-science programs/departments. This course cannot be taken as an elective towards the BME degree requirements.