

COURSE SYLLABUS

Course Title: Capstone Research

Course # DTS *299

Course Description: 3 credits

PIC Math (Preparation for Industrial Careers in Mathematics) is a program sponsored by the Mathematical Association of America (MAA), the Society for Industrial and Applied Mathematics (SIAM), and the National Science Foundation (NSF). The goal of this capstone project is to provide students with experience in researching and solving industrial problems. Students work in groups and research problems given by local businesses, industry, and government (BIG). This course mimics an internship – students learn to interact in a business setting, manage deadlines, produce technical documents, and think critically to find solutions. By the end of the course, each group produces a solution to their problem and completes a written, oral (video), and poster/PowerPoint summary of their work.

Pre-Requisite: This course requires permission by the instructor.

Outcomes:

Upon successful completion of this course, each student will be able to:

1. Formulate questions needed to solve a problem.
2. Apply research techniques to gain crucial knowledge about the industry problem and possible solutions.
3. Investigate data using statistical techniques.
4. Develop written and oral communication skills at a professional level.
5. Contribute in a team setting in a productive manner.
6. Engage in the client onboarding process
7. Gain working knowledge of project management design, development, and deployment
8. Use project management tools and techniques to develop a proposal and reporting schedule, and maintain a work plan
9. Make effective presentations to clients

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE
Spring 2021

Course: Capstone Research
Course Number: DTS* 299 (CRN 1428)
Meeting Days/Times: Monday 10:05am – 11:26am, Online via Teams
Instructor: Prof. Crystal Wiggins
Prof. Stacey Williams

Communication:
MS Teams Preferred method
Email cwiggins@nwcc.edu
swilliams@nwcc.edu

Office Hours: Online via Teams

Assignments

Students complete assignments which are tangential to their project, but are relevant to their skills learned in the course. Examples are sample written assignments, slide presentations, literature search results, etc.

Individual Progress Reports

Students are expected to submit weekly progress reports. In these reports, summarize the work completed during the previous week, outline future goals in the upcoming week, log your hours, and assess the work contributed by your group members.

Bi-weekly Group Project Summaries

Every other week, students prepare a report for submission to the industrial liaison. This will be graded and returned the class meeting before a liaison meeting for corrections, which will then be submitted to the liaison.

Bi-weekly Meetings with Industrial Liaisons

Students will have a professional meeting with their industrial liaison to outline progress, indicate future goals, and to ask questions. Professional attire is expected. These meetings may take place on campus or via WebEx.

Final Group Report

Each group produces a report outlining their project. This will include an introduction to the problem and justification for any solutions drawn. This must be at most 10 pages, without citations. Appendixes do not count toward the page count. This report may be reviewed by the MAA.

Final Group Poster

Each group produces a poster outlining their project. Students will present this poster at the end of the semester for NWCC faculty/staff/admin. You may have to present at a national math conference, MathFest, in July/August.

Final Group Presentation

Each group produces a slide presentation outlining their project. Students will convert this presentation into a recorded video presentation. The presentation must be at most 12 minutes in length.

Individual Paper

Students must write an individual paper further investigating the mathematics from one aspect of their group project. The student selects the topic for their expansion and must get the topic approved.

Class Meetings and Attendance

Students must attend all class meetings, group meetings, and liaison meetings, or make arrangements with a professor and your group beforehand. Students must attend the poster presentation. Class meetings will cover supporting material for the projects, i.e. technical writing will be covered one day, giving a presentation another day, etc.

Grading

The grading is as follows:

Grading Policy

The semester grade will be calculated as follows:

Assignments	10%
Progress Reports	20%
Final Group Report	20%
Individual Paper	20%
Final Group Presentation	15%
Final Poster Presentation	15%

Grading will be in accordance with the college catalog as follows:

A	93 – 100	C-	70 – 72
A-	90 – 92	D+	67 – 69
B+	87 – 89	D	63 - 66
B	83 – 87	D-	60 – 62
B-	80 – 83	F	below 60
C+	77 – 79		
C	73 – 76		

