NJIT
ECE788: ST: COMPUTATIONAL INTELLIGENCE
COURSE SYLLABUS
Fall 2023

Instructor: Dr. Qing Gary Liu, qliu@njit.edu.

Office Hours: Thursday 6-7 PM and Fridays 5-6 PM (or by appointment).

Description: This course deals with the fundamental methods in computational intelligence. The emphasis is on evolutionary computing, artificial neural network, multiple objective optimization, clustering, and etc. Special attention is paid to Genetic Algorithm, Bees Algorithm, Ant Colony Optimization, and Swarm Intelligence.

Prerequisites: Undergraduate degree in Computer Engineering or Computer Science or equivalent.

Textbook (optional):

Rudolf Kruse, et. el., *Computational Intelligence: A Methodological Introduction*, Springer, 2013. ISBN 978-1-4471-5012-1

Nazmul Siddique, et. el., *Computational Intelligence: Synergies of Fuzzy Logic, Neural Networks and Evolutionary Computing*, John Wiley & Sons, 2013. ISBN 978-1-118-33784-4

COURSE OUTLINE
(Tentative)

Weeks	Lecture
1	Introduction to Computational Intelligence and Evolution Computing
2-3	Genetic Algorithm and Simulated Annealing
4-5	Bees Algorithm and Applications, Ant Colony Optimization
6	Swarm Intelligence
7	Tabu Search, Scatter Search
8	**Midterm exam**
9-10	Workshop
11	Artificial Neural Network
12	Multiple Objective Optimization, Clustering
13-14	Project Report Presentation
15	**Final exam**

Grading Policy:

Midterm exam:	30%
Final exam:	30%
Paper presentation and Project	30%
Quiz	10%

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Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.*** *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.*