

221. 4440 Evolution as a Learning Algorithm

Time: Thursday 10:00-12:00

Instructor: Prof Sagi Snir, **Email:** , ssagi@research.haifa.ac.il

Office Hours: [Monday] [14:00-16:00], Room [m14], [58774]

Teaching Assistants & Office Hours:

Course Level: (BA+MA)

Course Type & Format: [Elective], [Seminar]

Number of Hours/Credits: 2

Prerequisites: Basic courses in statistics and mathematics for biologists

Course Overview (Short Abstract):

Over the last decade, new approaches have been proposed to describe and model evolutionary processes based on theories from computational fields, especially from computational learning. Examples include Valiant's evolvability theory, the role of sex through mixability theory, and so on. This new perspective draws great attention both in the computer science theory community and in the evolutionary community and creates collaborations of their own. The course will be given as a form of a seminar where central papers from the area will be presented,

Learning Outcomes (What are the skills, abilities, or major concepts a student is expected to acquire in this course?) – At the end of the course students will be able to:

1. ability to read and understand advanced articles
2. basic tools for computational learning, machine learning
3. Introduction to general algorithms, mathematical evolution, and evolutionary algorithms

Assessment (Assessment Method and Grade Composition):

Attendance – 0%
Paper Presentation – 80-100%
Class Involvement] – [20]%
[Requirement] – [Number]%