



# Course program and reading list

Semester 1 Year 2024

**School:** Efi Arazi School of Computer Science B.Sc

CS Honors Course second year

**Lecturer:**

Dr. Ran Cohen [ran.cohen01@runi.ac.il](mailto:ran.cohen01@runi.ac.il)

**Teaching Assistant:**

Dr. Ran Cohen [ran.cohen01@runi.ac.il](mailto:ran.cohen01@runi.ac.il)

Mr. Ziv Huppert [Ziv.Huppert@post.runi.ac.il](mailto:Ziv.Huppert@post.runi.ac.il)

---

<b>Course No.:</b>	<b>Course Type :</b>	<b>Weekly Hours :</b>	<b>Credit:</b>
3165	Lecture	3	3

<b>Course Requirements :</b>	<b>Group Code :</b>	<b>Language:</b>
Final Paper	241316501	Hebrew

---

## Course Description

The course covers advanced undergraduate topics in Computer Science, with an emphasis on the shift from abstraction to concrete details and back.

Topics that we will cover include:

- Representation of numbers and algorithms for addition and multiplication
- Computational number theory
- Hash functions
- RSA public-key encryption
- Polynomials
- Abstract algebra including groups, rings and fields
- Error correcting codes

- The Fast Fourier Transform
- 



## Course Goals

Advance the student's knowledge and expand their horizons.

Learning how to deal with advanced material of abstract and mathematical nature.

Expose the students to conceptualization and modeling in computer science.

---



## Grading

The course's assignments are:

- Weekly homework: 70% of the final grade
  - One lecture scribe during the semester (in pairs): 20% of the final grade
  - Participation 10% of the final grade
- 



## Learning Outcomes

Better grasp of the connection between concrete implementation and abstract modeling of problems in computer science.

Improved ability in self study of advanced material and problem solving.

---



## Reading List

N/A