

(Note: A Turkish translation exists as well.)

Course Schedule: Fridays, 12:30 to 15:20, Lab 207

Weekly Course outline

Weeks	Topics	Pre-study
1. Week	Discussion of Course	--
2. Week	Programming Review: Data Types, Variables and Basic Operations in Java Review: Program Flow, Methods (Functions) and Principles of Structured Programming	Lecture Notes & Preliminary Work
3. Week	Review: Classes, Objects, and Object Oriented Programming Review: Java Arrays and Difference of Array Implementations in Other Languages, Deep and Shallow Copies	Lecture Notes & Preliminary Work
4. Week	Strings and Core String Manipulation	Lecture Notes & Preliminary Work
5. Week	String Related Searches Regular Expressions	Lecture Notes & Preliminary Work
6. Week	Data Abstraction and Core Data Structures	Lecture Notes & Preliminary Work
7. Week	Sorting and Data Structures Designed for Sorting	Lecture Notes & Preliminary Work Assignment 1
8. Week	Mid-Term Exam	
9. Week	Searching with Trees and Tables	Lecture Notes & Preliminary Work
10. Week	Working with Distances Graph Concepts	Lecture Notes & Preliminary Work Assignment 2
11. Week	Minimum Spanning Trees Shortest Paths	Lecture Notes
12. Week	Discussion of algorithms specific to Operations Research	Lecture Notes
13. Week	Discussion of algorithms specific to numerical analysis	Lecture Notes

	Discussion of algorithms specific to social network analysis	
14. Week	Project submissions and presentations	--

Assesment methods

Course Activities	Number	Percentage %
Attendance (mandatory after add-drop week)	12	%10
Preliminary Homeworks (report and/or programs, submissions through Github)	up to 10	%10
Lab Assignments (report and/or programs, submissions through Github)	up to 10	%20
Homework Assignments (programs, submissions through Github and moodle)	2	%20
Midterm Exam (in-class or online, short duration, with discussion questions)	1	%20
Final Project (a program in Java, with a report, submissions through Github)	1	%20
Total	24	100
Percentage of semester activities contributing grade success	24	100
Percentage of final exam contributing grade success		
Total	24	100

Attendance: Attendance **after** add-drop period is mandatory. Students are required to attend at least %70 of classes. Typical excuses such as health reports should be communicated with the instructor.

Use of Github: All student work except in-class exams will be submitted through Github. Use of Github is a modern, widely used and well documented way to share code and datasets. It also allows easy tracking of source code, including finding out where it has been copied and pasted from. Therefore ECON majors are expected to be able to use it. **As Github use is mandatory, all work submitted in other ways will be automatically disqualified and graded as zero.**

Preliminary Homeworks: Students will be required to complete simple preliminary homeworks and submit them through Github. These homeworks will contribute toward a major part of their learning and also to their grade.

Use of Programming Languages: Course theory is language-independent. However a review of Java will be conducted at the beginning of the course, and code examples will be given with Java. Occasional discussion on other languages such as Python or C++ will also be made. Assignments can be submitted using any suitable programming language such as Python, Java or C++. Students are expected to have a fundamental understanding of the language they submit their homeworks in.

Use of Third Party Code Examples and Tutorials: Most, if not all, of class homeworks will require students to use programming libraries. These libraries are in all cases well documented and there are several online examples and tutorials for these libraries. In case a student finds useful code snippets, and simply copies and pastes the code, this is allowed. However, students are **required to give a reference** to the example or tutorial they have used inside the code, as a comment.

Use of ChatGPT and Similar LLM Tools: Use of AI tools in preliminary work, homeworks and final project is **allowed**, as long as **students report how these tools have been used** (questions asked and answers gotten, problems with answers, how students modified AI output in their work, etc.)

Course Category: Major Area Courses

Workload and ECTS Calculation

Activities	Number	Duration (Hours)	Total Work Load
Course Duration (Including Exam Week: 16 x Total Hours)	13	2	26
Laboratory	13	1	13
Application			
Specific practical training (if any)			
Field Activities			
Study Hours Out of Class (Preliminary work, reinforcement, etc)	13	4	52
Presentation / Seminar Preparation			
Projects	1	25	25
Homework assignment	4	6	24
Midterms (Study duration)	1	20	20
Final (Study duration)			
Total Workload			160

Matrix of the Course Learning Outcomes Versus Program Outcomes

Program Outcomes	Contribution Level*				
	1	2	3	4	5
1 Deepen and develop advanced level and current knowledge in economics to an expert level based on the competencies of the economics education and acquire the skills make original thoughts, views, and contributions to science.					x
2 To comprehend the interaction between economics and related fields; to achieve original results by using expert knowledge in analysis, and evaluation of new and complex ideas.					x
3 To acquire high level skills in applied methods in economics and to be able to systematically follow new theoretical developments in applied economics.					x
4 To be able to apply existing techniques to an original research idea.					x
5 To find a new scientific method.					x
6 To broaden the knowledge of economics by publishing scientific articles related to economics in national or international refereed journals and to publish these articles in a scientific ethical way.					x
7 To be able to identify, participate in, organize and lead activities, such as panels, workshops and conferences, that aim to develop solutions for novel and interdisciplinary problems.			x		
8 To follow pioneering and innovative theories and methods in economics, to be able to use them in analysis and research and to be able to contribute to the process of becoming an information society.					x
9 To be able to analyze the			x		

relationships and processes in economics and to develop functional and effective communication networks.					
10 To make some scientific contributions to projects aiming to increase the productivity in business.					x
11 To be able to share his/her work and to criticize works of others by using academic networks in economics efficiently.					x

1: Lowest, 2: Low, 3: Average, 4: High, 5: Highest