Course Information

Course Code	2360513
Course Section	1
Course Title	REPRESENTATION THEORY OF FINITE GROUPS
Course Credit	3
Course ECTS	8.0
Course Catalog Description	Ring theoretic preliminaries. Group representations and their characters. Characters, integrality and application to the structure theory of finite groups. Product of characters. Induced characters. Reduction and extension of characters. Brauer's theorem on characterization of characters.
Prerequisites	No prerequisites
Consent of Dept./Inst.	It would be enough background if you have : a good knowledge of Math 503/or have taken Math 464/ or good knowledge of Math 367 and Math 461/ or Math 461 and Math 463
Schedule	Not available
Lab Hours & Location	Math 513 tentative schedule (do not overlapp with the suggested schedules of Math 504 ve 537 : Mo: 15:40-16:30 Tue : 13:40-14:30 , Wed : 15:40-16:30 my other course schedule is at https://users.metu.edu.tr/home402/sozkap/wwwhome/aa.pdf
Course Website	https://users.metu.edu.tr/home402/sozkap/wwwhome/513-2023/ https://users.metu.edu.tr/home402/sozkap/wwwhome/aa.pdf
Learning Management System	I may send course e-mails through metuclass medium.

Instructor Information

Name/Title	Assoc.Prof.Dr. SEMRA ÖZTÜRK
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Tentative Weekly Outline

Week	Topic	Relevant Reading	Assignments
1	Algebras, Modules and Representations		
2	Group algebras, group algebra homomorphisms		
3	Irreducible modules and group algebra		
4	Maschke"s Theorem, Schurs Lemma		
5	Characters		
6	Orthogonality relations of characters		
7	Decomposing CG-Modules		
8	Products of Characters		
9	Induced Characters		

Week	Topic	Relevant Reading	Assignments
10	Normal Subgroups		
11	Frobenius reciprocity		

Course Textbook(s)

There is no single textbook.

Abstract Algebra by D. S. Dummit and R. M. Foote (Chapter 18, and 19)

Character Theory of Finite Groups by M.I. Isaacs (has a lot more material than one can do in this course)

Representations and Characters of Groups by G.James and M. Liebeck (good for self study has lots of eercises)

See

https://users.metu.edu.tr/home402/sozkap/wwwhome/513-2023/

https://users.metu.edu.tr/home402/sozkap/wwwhome/513-2013/

Assessment of Student Learning

Assessment	Dates or deadlines
Weekly or biweekly homeworks and two in-class exams.You can discuss homework questions but you should write your solutions on your own. Perhaps, presentations of some topics or homework questions by students.	

Course Grading

Deliverable	Grade Points
Midterm	35
Final	35
Homework	30
Total	100

Course Policies

Class Attendance

Class attendance is required (unless there are very essential reasons).

Final Exam Entrance Conditions

If you have not submitted homeworks / if you did not take the midterm exam you are not welcome to the final exam.