Math 8220: Abstract Algebra I — Fall 2010
(Section 005, CRN 86985)
1:30–2:45pm @ 207 Classroom South (CS), Monday and Wednesday

Instructor: Yongwei Yao
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Office: 766 COE (College of Education)
Phone: (404)413-6454 (office)

Lecture: 1:30–2:45pm @ 207 Classroom South (CS), Monday and Wednesday.

Office Hours: 10:30–11:30am Monday and Wednesday (at 766 COE). Or by appointment.

Textbook: Basic Abstract Algebra (2nd edition) by P. B. Bhattacharya, S. K. Jain and S. R. Nagpaul,
Cambridge University Press, ISBN 0-521-46629-6. The lectures will be based on this textbook,
covering materials in Chapters 15, 16, 17, 18, 5, 6, 7, 8.
Alternative textbook: Abstract Algebra (3rd edition) by David S. Dummit and Richard M. Foote,

Course content/outcome: The course offers a solid introduction to field theory covering its basic
concepts and fundamental theorems. It also covers some topics in group theory. The course
will cover field extensions, algebraic extensions, splitting fields, finite fields, normal extensions,
separable extensions, simple extensions, Galois extensions, Galois theory, etcetera. Concerning
group theory, this course will cover group actions, Sylow $p$-subgroups, solvable groups, finitely
generated abelian groups, etcetera. Students passing the course should be able to present proofs,
understand the majors results as well as apply them in solving routine exercises.

Prerequisites: Math 6441 and Math 6442 each with a grade of C or higher. During the first two
weeks of the semester the Department of Mathematics and Statistics checks the computer records
to determine whether or not each student has met the prerequisites for this course. If you do not
have the prerequisites please inform your instructor and change to another course. In case the
system finds that you don’t have the prerequisites, you need to drop this course. If you miss all
the classes during the first two weeks, you will be administratively withdrawn.

Homework: There will be weekly homework assignments that will be graded. You can discuss the
problems with your classmates, but the write-up of the solutions has to be done individually
according to your own understanding. Identical solutions will not be graded. Show your
work/steps. No late homework is accepted. Homework weighs 25% of overall performance.

Exams: There will be two midterm exams and a final exam, all held at 207 CS.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Exam I</td>
<td>Sept 29 (Wednesday), 2010</td>
<td>1:30–2:45pm</td>
<td>207 CS</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm Exam II</td>
<td>Nov 03 (Wednesday), 2010</td>
<td>1:30–2:45pm</td>
<td>207 CS</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Dec 08 (Wednesday), 2010</td>
<td>1:30–4:00pm</td>
<td>207 CS</td>
<td>25%</td>
</tr>
</tbody>
</table>

All three exams are required and the final exam is cumulative. Make-up exams will only be
allowed in case of extreme emergencies that must be documented, such as medical emergencies.
It is the instructor’s role to determine if a specific emergency is a valid one.

(more on the next page)
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Grading Scheme: First the total scores are computed by using the weights as follows:

<table>
<thead>
<tr>
<th>component</th>
<th>Homework</th>
<th>Midterm Exam I</th>
<th>Midterm Exam II</th>
<th>Final Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>overall weight</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Then the letter grades will be assigned as follows:

<table>
<thead>
<tr>
<th>score (%)</th>
<th>letter grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>97——</td>
<td>A+</td>
</tr>
<tr>
<td>90–96</td>
<td>A</td>
</tr>
<tr>
<td>87–89</td>
<td>B+</td>
</tr>
<tr>
<td>80–86</td>
<td>B</td>
</tr>
<tr>
<td>77–79</td>
<td>C+</td>
</tr>
<tr>
<td>70–76</td>
<td>C</td>
</tr>
<tr>
<td>60–69</td>
<td>D</td>
</tr>
<tr>
<td>0–59</td>
<td>F</td>
</tr>
</tbody>
</table>

Attendance: You are expected to attend regularly for the entire period of the class. That is, you are expected to arrive on time and stay for the duration of the class. Attendance will be taken periodically. After five or more absences a student can be withdrawn from this class. In case of an absence, the student is responsible for knowing all the materials covered. See page 64, item 1334 in [http://www.gsu.edu/images/Downloadables/Undergrad_06-07_catalog.pdf](http://www.gsu.edu/images/Downloadables/Undergrad_06-07_catalog.pdf)

Important withdrawal dates: Remember that a student who misses all the lectures during the first two weeks can be withdrawn by the instructor.

- Last day to drop a class with full refund: August 27, 2010. You may do this at [PAWS](http://www.gsu.edu/~matyxy/2010F/math8220.html)
- Last day to withdraw from term length classes and possibly receive a W: October 8, 2010.
- For information about withdrawals, see [http://www.gsu.edu/es/withdrawals.html](http://www.gsu.edu/es/withdrawals.html)

Other Important dates:
- Labor Day (No classes) September 6 (Monday), 2010
- Thanksgiving November 22–27, 2010
- Last Day of Classes December 6 (Monday), 2010

Disruptive behavior: Any disruptive behavior will be handled according to the University’s policy on disruptive behavior found at the following site [http://www2.gsu.edu/~wwwdos/codeofconduct_adminpol_a.html](http://www2.gsu.edu/~wwwdos/codeofconduct_adminpol_a.html)

This includes the possibility of withdrawing the student from the class.

Academic (dis)honesty: Academic honesty is expected. Cheating will not be tolerated and will be handled according to the University’s policy on academic honesty found at [http://www.gsu.edu/~wwwdos/codeofconduct_conpol.html](http://www.gsu.edu/~wwwdos/codeofconduct_conpol.html), which includes academic as well as disciplinary penalties.

Changes: This course syllabus provides a general plan for the course; deviations may be necessary.

Course URL: [http://www2.gsu.edu/~matyxy/2010F/math8220.html](http://www2.gsu.edu/~matyxy/2010F/math8220.html)

Relevant information (homework assignments, etc.) will be posted there as the course progresses.

Welcome aboard!