Math 103 - Course Outline, 2007 Fall Quarter.

LECTURES: MWF, 11:00 AM - 11:50 AM, Bldg 940 Room 1010.
INSTRUCTOR: Pawel Gladki.
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OFFICE HOURS: **MWF, 1:00 PM - 2:00 PM** If you want to see your instructor in his office, you are encouraged to make an appointment: see him before or after class, call his office or send him an e-mail.
TEXTBOOK: Joseph A. Gallian, *Contemporary Abstract Algebra*, 6th Edition, Houghton Mifflin Company, Boston 2006. Other editions of this book are suitable, but page and section references in this information sheet and homework problems are taken from the 6th edition.
LECTURES AND LABS: The MWF 11:00 AM - 11:50 AM period will be devoted to lectures on new material. There are no tutorials scheduled for this class, but we will solve a considerable number of problems in the lecture period, and you are more than welcome to ask questions re: your assignments or other problems.
EVALUATION: 20 short assignments, counting for a total of 20% of your mark, 2 quizzes, each counting for 20% of your mark for a total of 40% and final take-home examination counting for 40% of your mark.
EXAMINATIONS: Two quizzes will take place on **October 17th** and **November 19th**. Durations of each test will be 50 minutes. All exeminations will be closed book: no calculators, notes or formula sheets will be permitted. **Please be advised that cheating on an examination is considered a serious offence and can be met with disciplinary actions, including suspension or repulsion**. All examinations will be "show all work" tests of up to 5 questions. There will be no make up exams. Students who miss either one of the midterm exams for legitimate reasons will have the value of that examination transferred to the final examination thereby increasing the value of the final examination accordingly.
HOMEWORK: Problems from each section of the text will be released at least 2 or 3 days prior to discussing the topics. There are two kinds of problems: **drill exercises** and **assignments**. Drill problems will not be handed in or graded, but it is strongly advised to solve all of them (or as many as your time permits) before you start working on assignments - in order to get familiar with new definitions, theorems and examples. Assignments are to be completed and handed in for grading - there are 20 short assignments consisting of 5-6 problems, approximately each for one lecture. They will be returned in the following lecture. It is suggested that you have a look to the textbook before each class and skim the material to be instructed (see course calendar).

COURSE CALENDAR:

Sep. 28: Properties of integers (pp. 3-8)
Oct. 1: Modular arithmetic (pp. 8-14)
Oct. 3: Mathematical induction (pp. 14-17)
Oct. 5: Complex Numbers (a handout will be distributed in the class).
Oct. 8: Matrix algebra (a handout will be distributed in the class).
Oct. 10: Determinants (a handout will be distributed in the class).
Oct. 12: Relations (pp. 17-20)
Oct. 15: Functions (pp. 20-23)
Oct. 17: Quiz 1
Oct. 19: Groups (pp. 42-52)
Oct. 22: Groups cont. (pp. 42-52)
Oct. 24: Subgroups (pp. 59-63)
Oct. 26: Cosets (pp. 137-140)
Oct. 29: Lagrange Theorem (pp. 140-143)
Oct. 31: Order of an element (pp. 73-78)
Nov. 2: Cyclic groups (pp. 73-78)
Nov. 5: Homomorphisms (pp. 199-210 and 120-132)
Nov. 7: Normal subgroups (pp. 177-179)
Nov. 9: Factor groups (pp. 179-187)
Nov. 14: Homomorphism theorem (pp. 205-210)
Nov. 16: Homomorphism theorem cont. (pp. 205-210)
Nov. 19: Quiz 2
Nov. 21: Permutation groups (pp. 94-109)
Nov. 23: Permutation groups cont. (pp. 94-109)
Nov. 28: Normalizer, centralizer, comutant.
Nov. 30: Internal and external weak direct products of groups. External products of groups (products) (pp. 153-165)
Dec. 3: Internal and external sums of abelian groups (coproducts). Complete direct sums of abelian groups (products) (pp. 153-165)
Dec. 5: Torsion subgroups (pp. 217-222)
Dec. 7: Classification of finite abelian groups (pp. 217-222).