Description
This course examines the fair distribution of resources such as money, goods, voting power, and jobs. Case studies might involve dividing an estate, deciding priority for organ transplant, or creating a fair system of taxation. Allocation methods will be analyzed from mathematical, economic, political, and philosophical perspectives. A Peacemaking Perspectives course in the Goshen core.

Learning Goals
By the end of the course, students will do the following:
1. Mathematically model allocation problems and fairness properties and interpret the results derived from these models.
2. Describe and evaluate different notions of fairness derived from different cultural contexts.
3. Describe how different mechanisms for resource allocation can intensify or reduce the possibilities for conflict.
4. Describe the similarities and differences among the mathematic, economic, political science, and philosophic perspectives on questions of fairness.

Instructor
David Housman, SC 117, dhousman@goshen.edu, 535-7405 (office), 875-0339 (home)
Office hours posted at http://people.goshen.edu/~dhousman/Schedule13Spring.htm

Class Time
MWF 9:00-9:50 a.m. in SC 203.

Textbook

On-line
M:\Classes\MATH201\ for class notes.
https://moodle.goshen.edu for grades and some resources.

Prerequisites
Basic writing (English 105 or equivalent) and basic quantitative literacy (Math 105 or equivalent).

Grading
Grades will depend upon your performance on daily work (40%), a term paper (30%), and a group project (30%). Excellent, good, adequate, and minimal performances will earn grades of A, B, C, and D, respectively.

Daily Work
Class participation in discussions, activities, and quizzes is essential. Class activities will include games in which points will be earned for competing and/or cooperating with other students well. Reading, exercises, and/or short essays will be assigned during almost every class and will be due before the start of the next class. This daily work should help you to understand and apply many fairness concepts and techniques. With a 30% penalty, late submission and resubmissions are usually permitted within one week of the due date.

Extra Credit
Receive extra credit points applied to your daily work grade by attending a talk or participating in an activity that has some mathematics or fair allocation content and submit a paragraph or two description of what you thought was most interesting about the mathematics or fair allocation content.

Term Paper
Describe two allocation problems of personal interest or relevance, describe one or more solutions found in the literature, and analyze how well recommendations from the literature
work for your situations. Synthesize into a personal perspective on fairness. Although the final paper is not due until the final exam period, you will be expected to hand in drafts of portions of the paper during the semester: a personal reflection on the meaning of fairness in week 1, a description and analysis of one allocation problem in week 5, and a description and analysis of a second allocation problem in week 10.

**Group Project**

Describe a new or more sophisticated allocation problem, model the problem mathematically, suggest and/or identify relevant fairness properties, produce and analyze one or more solutions, and interpret the results. This can be completed by one to three students working together. Students should start proposing project groups and topics around week 6. The paper and presentation will be due during the final exam period.

**Due Date Policy**

Daily work, the term paper, and the group project must be completed by the due date to receive full credit. The only possible exception will be if (1) there is a serious medical problem, a death in the immediate family, or an irreconcilable conflict with another official Goshen College activity; (2) there is written documentation signed by proper authorities; and (3) the instructor is notified prior to the exam or as soon as possible afterwards.

**Academic Resource & Writing Center and Disabilities**

Goshen College wants to help all students be as academically successful as possible. If you have a disability and require accommodations, please contact Lois Martin, the Director of the Academic Resource & Writing Center early in the semester. In order to receive accommodations, documentation concerning your disability must be on file with the Academic Resource & Writing Center, Good Library 113, x7576, lmartin@goshen.edu. All information will be held in the strictest confidence. The Academic Resource & Writing Center offers tutoring and writing assistance for all students. For further information please see http://www.goshen.edu/studentlife/arwc.

**Collaboration and Academic Integrity**

You are encouraged to use all available resources in order to learn the concepts and techniques discussed in this course. In particular, conversations with other students and the instructor can be an effective learning method. Reading other books and web pages can be another effective learning method. However, copying someone else's work subverts the learning process.

For exercises, you may look at and discuss another student's work, but any written work developed during collaboration with another student should be destroyed before writing your own solutions. On all work submitted for a grade, you should give written acknowledgement to people with whom you have had discussions and to any written materials (other than the text) that were helpful. Papers you submit in this course will be checked for plagiarized material copied from the web, other student papers, and selected on-line databases.

For quizzes, you may not use any resources unless a specific exception is stated by the instructor.

Failure to observe the above rules will result in a penalty ranging from a zero on the assignment or exam to immediate failure of the course. Any violation of academic integrity will be reported to the Academic Dean.

Observation of the above rules will help you learn the material well and give you the satisfaction of knowing that you have earned your grade.

**Tentative Schedule**

We will cover roughly one chapter in the text or a separate topic each week. The final exam period will be Tuesday, April 23, 8:00-10:00am. At the beginning of this period, the term paper and group project paper will be due. During this period, group project presentations will be given.