*Please note that this syllabus should be regarded only as a general guide to the course and is subject to change at the instructor’s discretion.

**ADEC 741001, Operations Research in Applied Economics, 3 Credits**  
**Woods College of Advancing Studies**  
**Summer 2016 Semester, May 17 - June 24, 2016**  
**TTh 6:30pm - 9pm**

**Instructor Name:** Gokce Akin-Olcum  
**BC E-mail:** [gokce.olcum@bc.edu]  
**Phone Number:**

**Office:**
**Office Hours:**

**Boston College Mission Statement**
Strengthened by more than a century and a half of dedication to academic excellence, Boston College commits itself to the highest standards of teaching and research in undergraduate, graduate and professional programs and to the pursuit of a just society through its own accomplishments, the work of its faculty and staff, and the achievements of its graduates. It seeks both to advance its place among the nation's finest universities and to bring to the company of its distinguished peers and to contemporary society the richness of the Catholic intellectual ideal of a mutually illuminating relationship between religious faith and free intellectual inquiry.

Boston College draws inspiration for its academic societal mission from its distinctive religious tradition. As a Catholic and Jesuit university, it is rooted in a world view that encounters God in all creation and through all human activity, especially in the search for truth in every discipline, in the desire to learn, and in the call to live justly together. In this spirit, the University regards the contribution of different religious traditions and value systems as essential to the fullness of its intellectual life and to the continuous development of its distinctive intellectual heritage.

**Course Description**
This course provides an introduction to the use of operations research methods in economics. For this purpose, the course starts with a brief review of the basics from microeconomic theory, calculus and linear algebra, which is followed by the conceptual foundations of economic modeling and the applications of optimization techniques on various economic problems.

The course provides a very sound perspective on how to use operations research techniques in any kind of economic and managerial decision making, which has becoming an increasingly sought-after skill for college graduates. We will work on various problems, including portfolio management, resource management, environment and energy related regulations, etc.

The course is open to students who have been introduced to calculus and microeconomic theory. It is an advantage to be previously introduced to basic linear algebra. However, this is not a prerequisite and necessary knowledge is also provided throughout the course.

**Textbooks & Readings (Required)**

**Textbooks & Readings (Recommended)**
Canvas
Canvas is the Learning Management System (LMS) at Boston College, designed to help faculty and students share ideas, collaborate on assignments, discuss course readings and materials, submit assignments, and much more - all online. As a Boston College student, you should familiarize yourself with this important tool. For more information and training resources for using Canvas, click here.

Course Objectives
1. Students will demonstrate the development of their analytical and quantitative skills in for decision making in various areas, i.e. economics, finance, engineering.
2. The student will demonstrate knowledge across cultural settings and will learn the impact of culture, gender, and age in formulating research questions that can be answered using tools taught in this course as demonstrated by their discussion of examples of projects from various countries.
3. The student will demonstrate ethical knowledge pertaining to conducting and presenting results of projects that use tools discussed in class as demonstrated by their in-class discussion.

Grading

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm exam</td>
<td>(40%)</td>
</tr>
<tr>
<td>Final exam</td>
<td>(40%)</td>
</tr>
<tr>
<td>Class participation and problem sets</td>
<td>(20%)</td>
</tr>
</tbody>
</table>

The undergraduate grading system for Woods College is as follows:

A (4.00), A- (3.67)
B+ (3.33), B (3.00), B- (2.67)
C+ (2.33), C (2.00), C- (1.67)
D+ (1.33), D (1.00), D- (.67)
F (.00)

The graduate grading system for Woods College is as follows:

A (4.00), A- (3.67)
B+ (3.33), B (3.00)
B- (2.67), passing but does not count toward degree
C (2.00), passing but not for degree credit
F (.00)

All students can access final grades through Agora after the grading deadline each semester. Students who complete course evaluations can access grades earlier, as they are posted.

Deadlines and Late Work
Late assignments are not accepted.

Course Assignments
It is expected that you will spend 8 hours per week on out-of-class assignments and exercises. These will be assigned throughout the semester. Please note that some weeks will require more time and some weeks less time but the average is approximately 8 hours per week over the semester.

Course Schedule
<table>
<thead>
<tr>
<th>Date/Week</th>
<th>Topic</th>
<th>Reading/Assignments</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 17</td>
<td>Introduction and review of micro theory</td>
<td>Ch 2-6 &amp; 19-21 from Varian</td>
<td></td>
</tr>
<tr>
<td>May 19</td>
<td>Introduction to Model Building and Basic Linear Algebra</td>
<td>Ch 1 &amp; 2 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>May 24</td>
<td>Introduction to Linear Programming</td>
<td>Ch 3 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>May 26</td>
<td>Solving Linear Programming Problems</td>
<td>Ch 4 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>May 31</td>
<td>Sensitivity Analysis and Duality</td>
<td>Ch 5 &amp; 6 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>June 02</td>
<td>Network Modeling</td>
<td>Ch 8 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>June 07</td>
<td>MIDTERM EXAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 09</td>
<td>Nonlinear Programming</td>
<td>Ch 11 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>June 14</td>
<td>Nonlinear Programming</td>
<td>Ch 11 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>June 16</td>
<td>Decision Making under Uncertainty</td>
<td>Ch 13 from ORA &amp; A</td>
<td></td>
</tr>
<tr>
<td>June 21</td>
<td>Applied Economic Modeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 23</td>
<td>FINAL EXAM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Written Work**

Woods College students are expected to prepare professional, polished written work. Written materials must be typed and submitted in the format required by your instructor. Strive for a thorough yet concise style. Cite literature appropriately, using APA, MLA or CLA style per your instructor’s requirements. Develop your thoughts fully, clearly, logically and specifically. Proofread all materials to ensure the use of proper grammar, punctuation and spelling. For writing support, please contact the [Connors Family Learning Center](#).

**Attendance**

Attending class is an important component of learning. Students are expected to attend all class sessions. When circumstances prevent a student from attending class, the student is responsible for contacting the instructor before the class meets. Students who miss class are still expected to complete all assignments and meet all deadlines. Many instructors grade for participation; if you miss class, you cannot make up participation points associated with that class. Makeup work may be assigned at the discretion of the instructor. If circumstances necessitate excessive absence from class, the student should consider withdrawing from the class.

Consistent with BC’s commitment to creating a learning environment that is respectful of persons of differing backgrounds, we believe that every reasonable effort should be made to allow members of the university community to observe their religious holidays without jeopardizing their academic status. Students are responsible for reviewing course syllabi as soon as possible, and for communicating with the instructor promptly regarding any possible conflicts with observed religious holidays. Students are responsible for completing all class requirements for days missed due to conflicts with religious holidays.

**Accommodation and Accessibility**

Boston College is committed to providing accommodations to students, faculty, staff and visitors with disabilities. Specific documentation from the appropriate office is required for students seeking accommodation in Woods College courses. Advanced notice and formal registration with the appropriate office is required to facilitate this process. There are two separate offices at BC that coordinate services for students with disabilities:
The Connors Family Learning Center (CFLC) coordinates services for students with LD and ADHD.

The Disabilities Services Office (DSO) coordinates services for all other disabilities.

Find out more about BC’s commitment to accessibility at [www.bc.edu/sites/accessibility](http://www.bc.edu/sites/accessibility).

**Scholarship and Academic Integrity**

Students in Woods College courses must produce original work and cite references appropriately. Failure to cite references is plagiarism. Academic dishonesty includes, but is not necessarily limited to, plagiarism, fabrication, facilitating academic dishonesty, cheating on exams or assignments, or submitting the same material or substantially similar material to meet the requirements of more than one course without seeking permission of all instructors concerned. Scholastic misconduct may also involve, but is not necessarily limited to, acts that violate the rights of other students, such as depriving another student of course materials or interfering with another student’s work. Please see the [Boston College policy on academic integrity](http://www.bc.edu/sites/accessibility) for more information.

©2015 James A. Woods, S.J.  College of Advancing Studies