



**ÇANKAYA UNIVERSITY**  
**Department of Industrial Engineering**

**IE 527 – SIMULATION MODELING AND ANALYSIS**

Fall 2018

**Instructor:**

Assoc. Prof. Orhan Karasakal  
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Office: L-306

**Course Schedule:**

Thursday 18:00- 20:50 (Balgat Campus Sedam-1)

**Textbook:**

Simulation Modeling and Analysis, Fifth Ed., Averill M. Law, McGraw-Hill 2015.  
(QA76.9.C65L415 2000, 3<sup>rd</sup> ed., QA76.9.C65L415 1991, 2<sup>nd</sup> ed. in library holdings)

**Reference Book:**

Simulation with Arena, Sixth Ed., W. David Kelton, Randall P. Sadowski and Nancy B. Zupick,  
McGraw-Hill, 2015. (QA 76.9 .C65 K45 2015 in library holdings)

**Course Description:**

Simulation methodology. Overview of simulation tools. Model formulation. Selecting input distributions. Parameter estimation and distribution fit. Generating and testing random varieties. Model validation. Statistical analysis of simulation output. Variance reduction techniques. Design and analysis of experiments. The use of simulation for estimation, comparison of policies. Applications of simulation modelling in manufacturing, material handling, logistics and service systems.

**Topics to be Covered:**

Following is the list of topics to be covered and the corresponding chapters from the text.

- Review of simulation modeling and statistics (Chapters 1 and 4)
- Selecting input probability distributions (Chapter 6)
- Random number generators (Chapter 7)
- Generating random varieties (Chapter 8)
- Output data analysis for a single system (Chapter 9)
- Comparing alternative system configurations (Chapter 10)
- Variance-reduction techniques (Chapter 11)
- Validation and verification (Chapter 5)

**Course Web Page:**

A web page will be available for this course at <https://webonline.cankaya.edu.tr>. You will need to access this web page for announcements about class, lecture notes, and assignments. A copy of the lecture slides will be posted on Moodle at the beginning of every week. These lecture slides may not contain all the discussion, examples, and the solutions of the problems solved in the class; you are expected to use the slides to go over the plan of the week and to take notes during the class.

**Grading:**

Midterm	20 %
Final Exam	30 %
Homework	50 %
Total	100 %

**Classroom Policy:**

Every student is expected to respect the other students' right to learn. Any behavior which distracts or disturbs the other students or the instructor, or disrupts class in any way is unacceptable and will not be tolerated.

**Make-up Policy:**

A make-up examination for the midterm and the final exam will only be given under highly unusual circumstances (such as serious health or family problems). The student should contact the instructor as early as possible and provide the instructor with proper documentation (such as a medical note certified by Çankaya University's Health Center). A make-up exam may have a different format and may contain different type of questions than the regular exam.

**Attendance:**

Attendance will be taken every lecture hour. It is strongly recommended to attend all the lecture hours to understand the course material.

**Conditions that lead to the letter grade "NA":**

Not attending any one of the Midterm Exam (or its makeup) or the Final Exam (or its makeup).