

# Decision Support Systems for Industrial and Systems Engineering

ESI 6355

*Class Periods and Location:* MW 8-9, Weil 279

*Academic Term:* Spring 2018

## **Instructor:**

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Office Hours: Mondays and Wednesdays from 10:00 am to 11:00 am or by appointment, Weil 378

## **Teaching Assistants:**

Anton Kocheturov, [antrubler@ufl.edu](mailto:antrubler@ufl.edu), Office Hours: Mondays and Wednesdays, 12:30pm to 1:30pm, Weil 406

## **Course Description**

Applications of decision support systems in industrial and systems engineering; Developing and implementing decision support systems arising in industrial and systems engineering using popular database management and spreadsheet software; Microsoft Excel; Visual Basic for Excel. (4 credits).

## **Course Pre-Requisites**

COP227: Computer Programming for Engineers, ESI4312: Operations Research 1 with minimum grades of C.

## **Course Objectives**

Upon completion, students should be able to do the followings:

1. Understand the usefulness of decision support systems arising in the practice of industrial and systems engineering to become expert users of spreadsheets.
2. Take advantage of a large array of tools available in spreadsheet programs.
3. Accomplish tasks programmatically in a spreadsheet and learn how to design user-friendly graphical user interfaces.
4. Understand the issues that arise in the conceptual development and implementation of effective and user-friendly decision support systems.
5. Design, develop, and implement integrated decision support systems for industrial and systems engineering applications

## **Materials and Supply Fees**

None

## **Professional Component (ABET):**

This is a course with significant design content. Throughout the semester, students will complete a team project expected to meet specific design criteria.

## **Relation to Program Outcomes (ABET):**

Outcome	Coverage*
a. Apply knowledge	High
b1. Conduct experiments	
b2. Statistical design of experiments	
c. Design	High
d. Function on teams	High
e. Solve problems	Medium
f. Professional and ethical responsibility	
g. Communicate	High
h1. Economic impact	
h2. Global, societal, and environmental impact	

i. Lifelong learning	
j. Contemporary issues	Low
k. Techniques, skills, and tools for degree program	High

\*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not part of the course.

### **Required Textbooks and Software**

No textbook is required. Lectures will be provided to students through videos posted on Canvas and in-class presentations. Other course materials, including instructions, slides and exercises can also be downloaded from the course website on Canvas.

The development software required for this course is Microsoft Excel 2013 or later.

### **Course Schedule**

Week	Topic
1	Introduction & Functions And Formulas
2	Charts & Pivot Tables
3	Statistical Analysis& Excel Solver
4	<b>Exam-1</b> & Introduction to VBA
5	VBA Objects & Procedures & Flow Control
6	User Interface Design Object Classes
7	Collections & <b>Exam-2</b>
8	Advanced User Interface Design & Charts
9	<i>Spring Break</i>
10	Optimization & <b>Exam-3</b>
11	Project Work
12	Project Meeting-1 & Project Work
13	Project Work
14	Project Meeting-2 & Project Work
15	Project Work
16	Project Meeting-3& <b>Project Deadline</b> & Presentations

### **Attendance Policy and Class Expectations**

Attendance is not required; however, it is strongly recommended. It will be to your benefit to attend all lectures. Students will be responsible for all material covered in class.

Lectures are there to facilitate efficient learning, not chatting with friends, surfing the net, reading the Alligator, or sleeping. You should be focused on the course material and the in-class exercises assigned, not on activities that do not involve course work. Those who behave inappropriately will be asked to leave. If you cannot follow the lecture anymore, you can leave the class quietly; I will not be offended. Please, remember to turn off your cell phone as soon as you enter the classroom.

### **Make-Up Policy**

Excused absences require appropriate documentation.

If you missed an exam due to a health problem, you will need to provide documentation that indicates the date of the visit. In case of an exam conflict, you will need to present evidence of the conflict to the instructor. Please do not ask for a make-up exam to attend a job interview.

Exam-1	25%
Exam-2	25%
Exam-3	25%
Team project	25%

### Assignments & Grade Disputes

Your grade will be based on three in-class exams and a team project. In each exam, I include a few challenging tasks, which only the best students will be able to answer. These are the questions that distinguish the A students.

All assignments must be submitted via E-learning unless specified otherwise. Assignment deadlines are rigid. **If you do not submit before the deadline or submit the wrong file, you will receive a zero.** Only the instructor has the authority to grant late submissions.

Exam grade disputes must be made to the instructor within one week after grades are posted. Any grade dispute after the specified period will not be considered. The following describes the procedure:

- (1) Within one week after your grade has been posted, e-mail the instructor requesting a grade breakdown,
- (2) Compare your solution to the solution posted on the web-site using the detailed grade breakdown you receive,
- (3) If you still have questions about your grade, to resolve the issue either go to the instructor's office hours or request an appointment.

Project Work Start	Mar 19
Project Meeting	Mar 26
Project Meeting	Apr 9-10
Project Meeting	Apr 23-24
Final Submission	Apr 25
Presentation	Apr 28-30

Project teams will consist of 8 students. At the end of the semester, you will evaluate your teammates and you will be evaluated by them. Your grade will be based not only on your team score but also on your teammates' evaluations of you.

Project development will take place in stages with specific deadlines. The deadlines shown in the table are tentative and are subject to change with notice.

### Grading Policy

Grade	Range	Grade Points
A	[93-100]	4.00
A-	[90-93)	3.67
B+	[87-90)	3.33
B	[83-87)	3.00
B-	[80-83)	2.67
C+	[77-80)	2.33
C	[73-77)	2.00
C-	[70-73)	1.67
D+	[65-70)	1.33
D	[60-65)	1.00
D-	[55-60)	0.67

There may or may not be a curve at the end of the semester. This depends on the overall performance of the class throughout the semester.

Please keep in mind that this is a challenging and time consuming course, and the percentage of As has historically been in the 10% range. You have to study hard and perform well in every course activity in order to deserve an A.

Please note that **this is a required course for ISE students. This means that you must earn, at a minimum, a C in order to satisfy the requirement.**

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### ***Students Requiring Accommodations***

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### ***Course Evaluation***

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

### ***University Honesty Policy***

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### ***Software Use***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

### ***Student Privacy***

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

### ***Campus Resources:***

#### ***Health and Wellness***

#### **U Matter, We Care:**

If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

**Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.  
<https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling.  
<https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.  
<https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers.  
<https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus:** [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.