The University of Pennsylvania
The Wharton School
Operations, Information and Decisions Department

OIDD 101: Introduction to OIDD

Fall 2017 Course Syllabus

Professors	Hummy Song, hummy@wharton.upenn.edu Ken Moon, kenmoon@wharton.upenn.edu
Canvas	https://canvas.upenn.edu/courses/1369793
Lectures	Sec 001, Mondays & Wednesdays, 9:00am-10:30am, SHDH 213 Sec 002, Mondays & Wednesdays, 10:30am-12:00pm, SHDH 213 Sec 003, Mondays & Wednesdays, 1:30pm-3:00pm, JMHH 370
Exam 1 **Exam 2**	Tuesday, October 17, 6:00pm-8:00pm, Room TBD Friday, December 15, 3:00pm-5:00pm, Room TBD
PhD TAs	Tan Lekwijit, slek@wharton.upenn.edu Park Sinchaisri, swich@wharton.upenn.edu
Mentors	Ben Gendelman, genben@wharton.upenn.edu Madison Hendry, mhendry@wharton.upenn.edu
TAs	Caleb Carter, calebcar@wharton.upenn.edu Ben Gendelman, genben@wharton.upenn.edu Amy Lin, amylin3@wharton.upenn.edu Victoria Yuan, vyuan@wharton.upenn.edu

Course Description

In this course, we explore a variety of common quantitative modeling problems that arise frequently in business settings, and discuss how they can be formally modeled and solved with a combination of business insight and computer-based tools. The key topics we cover include capacity management, service operations, inventory control, structured decision making, constrained optimization, and simulation. Through this course, you will learn to model complex business situations, and you will master tools to improve business performance. The goal is to provide you a set of foundational skills useful for future coursework at Wharton, as well as providing an overview of problems and techniques that characterize disciplines that compose Operations, Information, and Decisions.

The course assumes no specific background beyond basic mathematics skills. Familiarity with the basic operations of Excel is helpful, but not required—we will provide tutorials for the needed Excel skills. Furthermore, no prior experience with programming or statistics is expected.

Course Format

The course is divided into 14 weeks, which don't necessarily match with the calendar weeks due to holidays. Each week has two class sessions. The first class session is a lecture designed to introduce concepts. The second class session, which we will refer to as the "recitation", reinforces the concepts introduced in the week's lecture. Those sessions are divided roughly into two halves: in the first half we will work through calculations first introduced in the lecture, and in the second half you complete a "recitation exercise" that is graded. To promote learning, you are free to ask questions regarding the exercise while you are working on it.

Mentoring:

There are weekly mentoring sessions. During the mentoring session, the mentor (an experienced undergraduate student) will work through several practice problems related to the week's lecture materials. Mentoring sessions are intended to supplement rather than replace attending course sessions. Mentoring is strictly optional. The mentoring problems/slides will be posted on Canvas so that they are available to all students in the course.

Course Materials

Textbook:
There is a Custom Coursebook for this course available at the Penn Bookstore. The book covers the material in the class. As the lectures/slides also cover the course material, the book is not strictly required. However, it is a useful resource to provide additional support, reference reading, and practice problems. The Fall 2017 book is different than books from previous versions of OIDD 101.

Online:
Canvas is a web-based application that houses online materials for enrolled students across Wharton. You can access our course by logging into our Canvas page listed at the front of this syllabus.

The course Canvas will be the definitive source for all assignments and deadlines. You will not have access to Canvas until you officially register for the course.

Lecture Notes:
Lecture notes are posted on Canvas. If we were to print lecture notes for distribution in class, every student would be charged on their Bursar's bill. Because not all students use physical notes, for cost and environmental reasons, we post notes online; you can choose whether or not to print the lecture notes yourself.

Software:
In this course we use Excel, and in particular two Excel add-ins: Solver and Crystal Ball. All software required for the course is available through the Wharton computing labs in Huntsman Hall.

Academic Integrity

Students are expected to adhere to the principles of the **University's Code of Academic Integrity**.

Deliverables and Grades

The following weights apply to determine your final score % in the course:

Six graded assignments	.30
Recitation exercises	.10
Exam 1	.30
Exam 2	.30

Final grades will be awarded approximately in the following proportions: 3% A+, 15% A, 25% A-, 24% B+, 18% B, 9% B-, 6% C+ or lower. The average final grade in the course will approximately equal a B+.

Partial credit is not given on recitation exercises, assignments, or exams.

Assignments:
You are required to complete six graded assignments during this course. The questions on these assignments are similar in nature to the questions on the exams. To promote learning, you <u>may</u> collaborate and/or consult with other students registered this semester in OIDD 101 on these assignments. In other words, you are not cheating if you discuss your solutions to these assignments with other students in this course. However, each student must submit his or her own assignment.

All assignments are due by 11:30 p.m. of the assigned due date (see the course summary). Late assignments are not accepted for credit (even partial credit). You submit your assignments electronically via Canvas.

Recitation Exercises:
You must attend the class sessions you are registered in. If you do not attend the section you are registered in, then you receive zero credit for the recitation exercise.

There are 12 recitations and 13 recitation exercises. The first recitation exercise, R0, is based on the course syllabus and is submitted via Canvas. R0 is due Monday, September 11. However, to accommodate students who add the course late, this recitation is accepted up to Tuesday, September 19.

Your recitation grade is the average of your top 11 recitation exercises (out of 13). Thus, you can miss up to two for any reason without penalty.

Exams:
There are two, non-cumulative examinations. You may use during either exam *one* 8.5"x11" sheet of paper that contains your name and whatever notes you wish to write on either side. You may hand write your notes or have them printed. You may only bring one sheet of paper—it is not acceptable to bring two pieces of paper stapled together even if you write on

only the outside of each sheet. You are required to submit your note sheet along with your exam. During the exam, you may not use any other notes, books, slides, handouts, etc.—your only source of reference material is your one 8.5"x11" sheet of paper.

You may use a calculator (which includes graphing or programmable calculators) during the exam. However, you may not use a computer, smart phone, iPod, or any electronic device that runs Excel or can communicate with another electronic device.

Both exams are common exams—all sections take their exam at the same time.

If you have an exam or regularly scheduled course that conflicts with an OIDD 101 exam, then you should submit a request for an alternative time via a Canvas (non-graded) quiz. You should submit your request no later than two weeks before the exam. In general, you will take the OIDD 101 exam in the two hours after the scheduled time for the exam, and if that is not possible, you will take it during the two hours prior to the scheduled time.

If you cannot attend an exam for any other reason, then you must provide documentation as to why you will not be able to attend (or were not able to attend). In general, excused absences are given only for serious health issues. If you are granted an excused absence from Exam 1, then you will need to make up the exam (around November 1), or, if that is not possible, when Exam 1 is offered in Spring 2018. If you are granted an excused absence from Exam 2, then you will take a make-up exam during the university's scheduled make-up exam, which usually occurs in early January.

Support Questions and Assistance

The mentoring sessions provide a regular meeting for the discussion of the weekly course content. In addition to mentoring sessions, there are regular Teaching Assistant (TA) office hours. A TA office hours schedule will be posted on Canvas shortly after the beginning of the semester.

Concerns with Grading

If you have a question about your grade, please contact in writing (e.g., an email) the appropriate Professor (Song for the first half, Moon for the second). Your entire document will be reviewed. You may submit a request to review your assignment, recitation exercise, or exam only within the two-week period after the assignment/recitation exercise was due or the exam was taken.

Waivers and Prior Experience

Many of you have significant experience with computer technologies. A potentially dangerous strategy is to assume that because you are technologically literate, you know everything you need to know about business modeling and quantitative analysis. While our goal is to make this class as accessible as possible to all students, it is very difficult to do well if you rely only on prior knowledge and/or doing the readings on your own.

As a rule, we do not grant waivers of OIDD 101 except for M&T students and dual degree students who are receiving a degree from Engineering in addition to Wharton.

Schedule Summary

Week	Lecture	Recitations	Topic	Assignments and recitations	Canvas submissions
1	30-Aug	6-Sep	Process performance metrics Read Chapters 2, 10 and 3.1-3.2		
2	11-Sep	13-Sep	Process improvement - capacity management Read Chapters 3.3-3.5, and 4	R0	11-Sep
3	18-Sep	20-Sep	Multiple flow units + setup costs Read Chapters 5, and 12	A1	18-Sep
4	25-Sep	27-Sep	Process interruptions - setup times Read Chapter 7		
5	2-Oct	4-Oct	Queuing dynamics and management Read Chapter 16	A2	2-Oct
6	9-Oct	11-Oct	Structured decision making	A3	13-Oct
7	16-Oct	-	Exam review		
			Oct 17 - EXAM 1 - 6:00pm - 8:00pm - TBD		
8	23-Oct	25-Oct	Modeling business decisions		
9	30-Oct	1-Nov	Linear modeling examples		
10	6-Nov	8-Nov	Sensitivity analysis	A4	6-Nov
11	13-Nov	15-Nov	Integer models		
12	20-Nov	27-Nov	Decision modeling under uncertainty	A5	20-Nov
13	29-Nov	4-Dec	Simulation examples		
14	6-Dec	-	Comparing alternative decisions using simulation	A6	6-Dec
	-	-	**Dec 15 - EXAM 2 - 3:00pm - 5:00pm - TBD**		