

# Technical Elective: Service Management

## Spring 2023

### Class

- Time: Tuesday 8:15 AM – 11:00 AM
- Location: 4-204

### Instructor

- Name: Di Liu
- Email: di.liu@scupi.cn
- Office: Rm 3-324A

### TAs

- Name: Yuewei Ling (Coral)
- Email: lingyuewei@stu.scu.edu.cn

### QQ group

- 275376338

### Office hours

- Right after each class in the classroom.
- Instructor: Thursday 8:00 AM - 11:00 AM, or by appointment.

### Notes

- This syllabus is subject to change. Please follow updates announced during class and posted on Blackboard website.
- When emailing the instructor or TAs, please include "Service Management" in the subject field of your message. Use your university email account (student\_ID\_number@stu.scu.edu.cn), since mails from other accounts might be stopped by the SCU spam filter. Thanks! ^\_^

### Course Description

Modeling and analysis of service systems. Students learn to work with data analysis tools and queueing models that are used to engineer and improve systems in service industry including healthcare, banking, and customer contact centers. The course incorporates hands-on modeling exercises with system data.

We will cover different aspects of service systems and issues regarding their management and control. Common managerial issues we will look at include:

- Staffing of these systems (how many people to employ, when, and to do what?)
- Admission and routing of customers (should we always accept customers? who will serve an accepted customer?)
- Scheduling of appointments
- Customer behaviors that affect system performance: abandoning, renegeing, balking.

We will be modeling service systems using queueing theory as waiting lines provide a natural representation for their operations. We will cover empirical analysis and work with data first. We will be using Excel Solver.

### **Prerequisites**

- IE 1070, IE 1081

### **Applicable ABET Outcomes**

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

### **Textbook**

- FITZSIMMONS, James A., FITZSIMMONS, Mona J., Bordoloi, S., "Service Management: Operations, Strategy and Information Technology", 8th edition, McGraw-Hill, 2013.

### **Assessments**

- Homework: 30%
- Midterm Exam: 30%
- Final Exam: 40%

### **Grade**

90.00 – 100.00 A	85.00 – 89.99 A-	80.00 – 84.99 B+	76.00 – 79.99 B	73.00 – 75.99 B-
70.00 – 72.99 C+	66.00 – 69.99 C	63.00 – 65.99 C-	60.00 – 62.99 D	0.00 – 59.99 F

## Class Policy

Regular attendance is essential and expected. Important dates and plans will be announced during class. **It is imperative that you come to class prepared.** This will generally involve reading one or more chapters of the textbook, thinking, engaging with fellow students, practice and performing preliminary calculations. This is a three credit hours class, which means you should expect to devote at least 9 to 12 hours of effort outside the scheduled class time every week.

## Homework and Other Assignments

Homework problems and other assignments will be assigned periodically and are due as stated in the assigned paper. All work will be submitted electronically through the Blackboard system. Late submission **WILL NOT** be accepted. **Students' names and ID numbers** must be listed on the first page. It is your duty to make sure that submission through Blackboard has been properly processed. Unless specifically requested, emailed homework will not be accepted. If you have a compelling emergency that prevents you from turning in the homework on time, please email the instructor.

All of the homework scores will be used in your grade computation. Unless otherwise indicated, you can work with your fellow classmates in the class, but you must submit a distinct and independent write-up to receive credit. If plagiarism is caught, zero score for all homework.

If you believe an error has been made in the grading of an assignment, bring it to the attention of your TA **within ONE WEEK** from its return.

Please adhere to these homework guidelines:

- Put your name, ID number (last 4 digits), and class section at the top of the first page.
- All work must be shown for each solution to receive full credit. Present your solution in a logical fashion, showing and explaining all steps in detail.
- Obtaining the correct answer includes getting the correct quantity, number of significant digits, sign, and unit.

## Exams

There will be two exams (one Midterm and one Final), all are **CLOSED-BOOK**. Students can bring one A4 page note and it must be **hand-written on two sides** of the paper. It cannot be a photocopy. If you must miss an exam, you **MUST** make alternative arrangements with the instructor before the exam is given. If you miss an exam without prior notification, you will receive a score of **"ZERO"** for that exam except under extenuating circumstances.

## **Avoiding Plagiarism**

- Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.
- Paraphrasing, when the original statement is still identifiable and has also no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together Unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.

## **Tentative Topics**

1. Introduction to Service Systems
2. Service Quality and Strategy
3. Service Development and Delivery
4. Measurement and Modeling for Service Operations
5. Deterministic Models and Approximations for Queues
6. Queueing Models and Capacity Planning for Service Systems
7. Quality vs Efficiency in Service Networks
8. Managing Supply and Demand: Admission Control, Cross-training, Appointment Scheduling, and Skill Based Routing