Technical Elective: Service Management

Spring 2025

Class

- Time: Monday 8:15 – 11:00
- Location: N-209

Instructor

- Name: Di Liu
- Email: di.liu@scupi.cn
- Office: N-413

QQ group

- 872449262

Office hours

- Right after each class in the classroom.
- Instructor: Monday 13:30 - 16:30, 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:
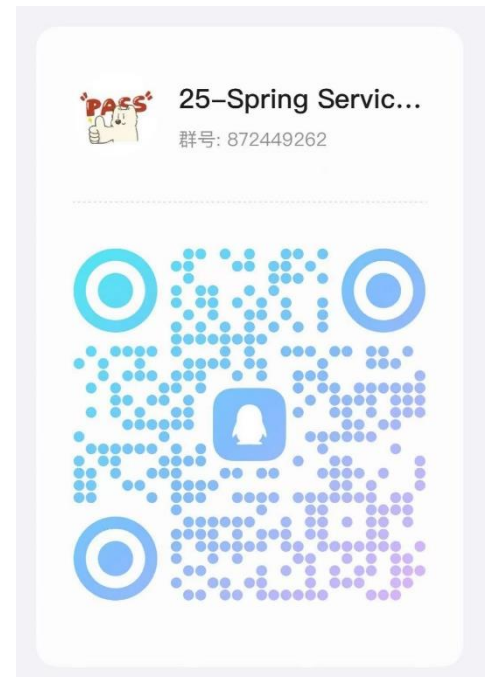
- Staffing of these systems (how many people to employ, when, and to do what?)
- Admission and routing of customers (should we always accept customers? who will serve an accepted customer?)
- Scheduling of appointments
- Customer behaviors that affect system performance: abandoning, reneging, balking.

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

- Christian Gronroos, Service Management and Marketing: Managing the Service Profit Logic, 4th Edition, John Wiley & Sons, 2016
- Reference Reading
    - 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 me **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). 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 and the Course Schedule

Week	Date	Topic
1	2/24	Introduction to Service Systems
2	3/3	Service Design
3	3/10	Service Quality and Strategy
4	3/17	Service Development and Delivery
5	3/24	Statistical Inference for Services
6	3/31	Forecasting Arrivals: Time Series Methods I
7	4/7	Forecasting Arrivals: Time Series Methods II
8	TBD	Midterm
9	4/21	Modeling of Service Systems: Service Networks
10	4/28	Modeling of Service Systems: Fluid Models
11	5/5	*Labor Holiday (No class)*
12	5/12	Modeling of Service Systems: The Deterministic Fluid Model
13	5/19	Modeling of Service Systems: Queue Design
14	5/26	Modeling of Service Systems: Modeling Patience Times
15	6/2	*Dragon Boat Festival (No class)*
16	6/9	Case Study: Summary of This Course
17	TBD	Final Exam