

The University of Texas at Arlington
Department of Industrial, Manufacturing, and Systems Engineering

IE 5329: Production and Inventory Control Systems

Summer 2018

MTWTh 3:30-5:30 p.m.

Woolf Hall 404

Instructor:	Dr. Caroline Krejci	Office Hours:	MW 2:00-3:20 p.m. or by appointment
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Course Description: The fundamentals of production and inventory control systems. The economic impacts of fluctuating demand, supply availability and production rates are examined.

Course Objectives: Upon completion of this course, students will be able to:

- Analyze and develop inventory management policies under deterministic and stochastic environments.
- Apply and analyze forecasting models to develop business enterprise forecasts for product demand and material and capacity requirements.
- Develop aggregate production plans and detailed schedules through simple policies and more sophisticated mathematical models.
- Design, develop, and analyze a master production schedule and a resultant materials requirements plan.
- Describe lean and just-in-time principles and the difference between push and pull systems.
- Develop and analyze production plans for static, single-machine systems and assembly lines using multiple different heuristics and performance metrics.
- Review and critically analyze scholarly journal articles and share this analysis with peers via written critique and oral presentation.

Prerequisite: Graduate standing in IMSE or permission of IMSE advisor.

Textbook (recommended): Wallace J. Hopp & Mark L. Spearman, *Factory Physics*, 3rd edition, ISBN 13: 978-1-57766-739-1, ISBN 10: 1-57766-739-5

Grading: A weighted average grade will be calculated as follows:

Midterm Exam	20%
Research Paper Critiques	15%
Research Paper Presentation	25%
Final Exam	40%

Exams: There will be one in-class midterm exam and a final exam. The final exam will be held on Monday, July 9, from 3:30 p.m. to 5:30 p.m. I will only administer make-up exams (before or after the scheduled exam date) in cases of verifiable emergencies.

Research Paper Critiques: We will be reading five research papers on topics related to production and inventory control systems throughout the semester. For each paper, two relevant critique questions will be assigned to provide students the opportunity to critically evaluate scholarly work. Research critiques will be submitted via Blackboard. I will not accept late critiques.

Research Paper Project: Each student will be assigned one of the five research papers to read, analyze in depth, and present to the class.

Homework and In-Class Assignments: I will assign homework problems and several in-class assignments throughout the semester to reinforce the concepts presented in the lectures. While these problems will not be graded, students are strongly encouraged to work through the problems to increase their understanding of course material.

Re-grading Policy: If you feel that your performance has been under-evaluated, please resubmit your work, along with a written statement directly to me within one week after receiving your grade, explaining clearly why you feel that your grade should be adjusted. I will re-grade your ENTIRE assignment/exam, which may possibly lower your grade.

Statement on Professionalism: The use of laptops, cell phones, smart phones, or other mobile communication devices is disruptive, and is therefore prohibited during the lecture. Except in emergencies, those using such devices may be asked to leave the classroom for the remainder of the class period.

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I will be taking attendance. Attendance is strongly encouraged and will be a factor in determining final grades for borderline cases. While UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships: www.uta.edu/fao/.

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA), and Section 504 of the Rehabilitation Act. All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Non-Discrimination Policy: The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit www.uta.edu/hr/eos/.

Title IX Policy: The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817)272-7091 or jmhood@uta.edu.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents' Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at www.uta.edu/conduct/.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at www.uta.edu/oit/cs/email/mavmail.php.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit www.uta.edu/news/info/campus-carry/.

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit www.uta.edu/ier/Surveys/SFS/.

Final Review Week: For semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should move toward the nearest exit, which is located just outside the door at the front of the room and down the stairs. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/universitycollege/resources/index.php.

The IDEAS Center (2nd Floor of Central Library) offers free tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817)272-6593.

Lesson Plan (subject to change; in the event of a change, I will notify you in advance):

#	Date	Topics	Textbook
1	6/4	Introduction; Inventory Control: Deterministic	Chapter 0 & 2
2	6/5	Inventory Control: Deterministic	Chapter 2
3	6/6	Inventory Control: Deterministic	Chapter 2
4	6/7	Inventory Control: Deterministic	Chapter 2
5	6/11	Inventory Control: Stochastic	
6	6/12	Inventory Control: Stochastic	
7	6/13	Forecasting	Chapter 13
8	6/14	Forecasting	Chapter 13
9	6/18	Forecasting; Aggregate Planning	Chapter 13 & 16
10	6/19	Aggregate Planning	Chapter 16
11	6/20	MRP	Chapter 3
12	6/21	Midterm Exam	
13	6/25	MRP	Chapter 3
14	6/26	MRP	Chapter 3
15	6/27	JIT & Lean; Group 1 Presentation	Chapters 4 & 10
16	6/28	Production Scheduling; Group 2 Presentation	Chapter 15
17	7/2	Production Scheduling; Group 3 Presentation	Chapter 15
18	7/3	Production Scheduling; Group 4 Presentation	Chapter 15
	7/4	Holiday – no lecture	
19	7/5	Production Scheduling; Exam Review; Group 5 Presentation	Chapter 15
	7/9	Final Exam: 3:30 p.m.- 5:30 p.m.	