

## **Wheeling Jesuit University, Department of Business and Engineering ENGR 476; Operations Management; Syllabus; Spring 2019**

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**Course description:** This course is an introduction to the field of operations management and focuses on how organizations transform inputs to products and services. Topics include: modeling and analysis of operations; supply chain analysis and planning; inventory control and warehouse management; logistics network design; and supply chain coordination.

**Textbooks:** Matching Supply with Demand, An Introduction to Operations Management, 1<sup>st</sup> Edition, Cachon and Terwiesch (ISBN-13: 978-0-07-291899-1)

The Goal, A Process of Ongoing Improvement,  
Eliyahu M Goldratt, (ISBN: 0-88427-178-1)

**Learning outcomes:** Upon successful completion of this course:

1. Students will be able to apply quantitative models and qualitative strategies to business processes. Students will display proficiencies by demonstrating the following competencies:
  - a. Describe and apply Little's Law
  - b. Determine the capacity of a process and compute process utilization
  - c. Determine process labor content, labor utilization, and idle time
  - d. Assess setup time/costs and impact of product variety on production performance
  
2. Students will be able to apply the concepts of statistical process control to operations processes. Students will display proficiencies by demonstrating the following competencies:
  - a. Evaluate the consequences of variability on processes
  - b. Apply the tools of quality management
  
3. Students will be able to develop strategies for managing supply chains. Students will display proficiencies by demonstrating the following competencies:
  - a. Determine lead-times for inventory control
  - b. Apply risk-pooling strategies: product pooling, location pooling, and universal design
  - c. Describe the bullwhip effect and mitigation techniques

**Attendance Policy:** none. However, when you do attend class, please do NOT use your cell phone during class.

**Last Date to Drop the Course:** The last day of the Add/Drop Period for this session is Friday, 11 Jan 2019. The last day to withdraw from this course with a grade of a W is Friday, 8 Feb 2019.

**Academic Integrity Statement:** Students are advised that WJU's Academic Integrity Policy will strictly be enforced in this course (see [www.wju.edu/studenthandbook](http://www.wju.edu/studenthandbook)). Questions regarding the policy may be directed to the Office of the Academic Vice-President

**Official E-mail:** An official WJU e-mail is established for each registered student, each faculty member, and each staff member. All university communications sent via e-mail will be sent to this WJU e-mail address.

**All Campus Life Policies apply.** Specifically, the Campus Life: Academic Dishonesty & Integrity Policy ([http://www.wju.edu/about/hr/policies/cl\\_academicdishonesty.asp](http://www.wju.edu/about/hr/policies/cl_academicdishonesty.asp)).

- Collaboration is encouraged for all out-of-class assignments
- In-class evaluations are individual effort ... open textbook (WCO) and a calculator

**The Academic Resource Center:** The Academic Resource Center (ARC) is a totally free academic-support service available to all enrolled Wheeling Jesuit University students and staffed almost exclusively by WJU students recommended for employment by WJU faculty. The ARC is located in Bishop Hodges Library and is open five days a week:

Sundays 6:00-8:00 p.m.  
Mondays-Thursdays 1:00-9:00 p.m.

Please visit the ARC's website (readily accessible on the Cardinal homepage under "Quick Links" or as the first listing under "Student Services") [www.wju.edu/arc](http://www.wju.edu/arc) to learn about the ARC's services (emphasizing writing, math, and the sciences) and to schedule appointments.

**Disability Statement:** Wheeling Jesuit University offers students with documented disabilities individual accommodations on a case-by case basis with confidentiality in compliance with the American with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.

In order to receive academic or physical accommodations, students with disabilities must provide current (within three years) and comprehensive documentation concerning the nature and extent of the disability and communicate their needs to the Disability Services Director, located in Ignatius Hall Room G 24 or call 304-243-4484. Students are required to meet with the director to develop accommodation plans that they will present to their course instructors at the beginning of each semester. Students with disabilities that require specific housing accommodations must contact both the Director of Residence Life and the Disability Services Director.

Ultimately, all students with disabilities are responsible for their own academic achievement. They must attend classes, complete course assignments, and fulfill all university requirements for their chosen field of study. It is up to students with disabilities to seek out available assistance on campus and to utilize individualized accommodations that promote academic success.

**Title IX Statement:** Wheeling Jesuit University seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment, misconduct, or assault we encourage you to report this. If you report this to a faculty member, she or he must notify our college's Title IX coordinator about the basic facts of the incident (you may choose whether you or anyone involved is identified by name). For more information about your options at WJU, please go to <http://wju.edu/titleix/>

Course grading:	End-of-chapter questions <sup>1</sup>	20%
	Midterm Exam <sup>2</sup>	35%
	Final Exam <sup>2</sup>	45%

1. Weekly assignments: students are required to submit solutions to end-of-chapter questions on Tuesday evenings before class begins. The best ten scores of twelve will be used to compute your “end-of-chapter question” percentage. Late submissions will not be accepted. Collaboration is encourage.
2. The Midterm Exam and Final Exam are individual effort and will closely resemble the example problems provided in the supplemental material.

Course Grade Assignments:

A	93% and above	B-	80-82%
A-	90-92%	C	75-79%
B+	87-89%	F	74% and below
B	83-86%		

**Office hours:** By appointment. My Class schedule ...

Course	Monday	Tuesday	Wednesday	Thursday	Friday
MATH 192, Acker 205	1000-1050	0930-1020	1000-1050		1000-1050
MATH 235, Acker 205	1100-1150		1100-1150		1100-1150
ENGR 475, Acker 205	1300-1350		1300-1350		1300-1350
ENGR 476, Acker 205		1800 - 1915		1800 - 1915	
BUSN 410		1930 - 2045		1930 - 2045	
MATH 482, Donahue 112					1400-1550

DATE	TOPIC	Out-of-Class Assignment	
8 & 10 Jan	The Process View of an Organization	1	Questions: 2.3, 2.4, 2.5 Read CT CH3 Read The Goal CH6-CH10
15 & 17 Jan	Understanding the Supply Process	2	Questions: 3.4, 3.5 and 3.6 Read CT CH4 Read The Goal CH11-15
22 & 24 Jan	Estimating and Reducing Labor Costs	3	Questions: 4.2, 4.3 and 4.4 Read CT CH5 Sections 5.1-5.3 and 5.6-5.9 Read The Goal CH16-20
29 & 31 Jan	Batching, Setup Times and Other Flow Interruptions	4	Questions: 5.2, 5.3 and 5.4 Read CT CH6 Read The Goal CH21-25
5 & 7 Feb	Variability and its Impact on Process Performance: Waiting Time	5	Questions: 6.3 and 6.4 Read CT CH7 Read The Goal CH26-30
12 & 14 Feb	The Impact of Variability on Process Performance: Throughput Losses	6	Review CT CH1-7 Review The Goal CH1-30 Questions: 7.5
19 & 21 Feb	Review and <b>Midterm Exam</b>		Read CT CH5 Sections 5.4-5.5 and CH9
5 & 7 Mar	The Economic Order Quantity and The Newsvendor Models	7	Questions: 5.6, 5.7, 9.5 and 9.6 Read CT CH10
12 & 14 Mar	Quick Response and Reactive Capacity	8	Questions: 10.3, 10.5 and 10.6 Read CT CH11
19 & 21 Mar	The Order-up-to Inventory Model	9	Questions: 11.4, 11.6 and 11.7 Read CT CH12
26 & 28 Mar	Risk-Pooling Strategies to Reduce and Hedge Uncertainty	10	Questions: 12.3 and 12.4 Read CT CH13
2 & 4 Apr	Revenue Management with Capacity Controls	11	Questions: 13.4, 13.5 and 13.6 Read CT CH14
9 & 11 Apr	Supply Chain Coordination	12	Questions: 14.3 and 14.4 Read CT CH8
16 & 18 Apr	The Toyota Production System		
25 & 30 Apr	Review		Review CT Review The Goal
2 May	<b>Final Exam</b>		1800-2030