

**Q781**  
**Management Science Research Issues II**  
**Winter 2020 Course Outline**

**Operations Management**  
**DeGroote School of Business**  
**McMaster University**

**COURSE OBJECTIVE**

The purpose of this PhD research course is to help Ph.D. student Shuai Zhang build knowledge and skills in the spare parts inventory models.

**INSTRUCTOR AND CONTACT INFORMATION**

Tuesday 10:00am-1:00pm  
Dr. Kai Huang  
Associate Professor  
[khuang@mcmaster.ca](mailto:khuang@mcmaster.ca)  
Office: DSB 404  
Tel: (905) 525-9140 x 23449  
Classroom: DSB 404

**COURSE DESCRIPTION**

This course provides an exposure to the spare parts inventory problems and models.

**LEARNING OUTCOMES**

After this course, the student will have a good understanding of spare parts inventory management and define research problems.

**REQUIRED COURSE MATERIALS AND READINGS**

The instructor will provide the student a list of journal papers. The list could subject to changes according to the progress of the students.

## EVALUATION

For each paper, the student will write a review report. At the end of the course, the student will provide a literature review report on the spare parts inventory management.

Class participation	20%
Individual reading material review report	40%
Term literature review report	40%
Total	100%

### ***Individual reading material review report***

For each reading material (a journal paper or a book chapter), write a review report describing the technical details.

### ***Term literature review report***

Write down a term literature review report including all the reading materials. Besides the listed reading materials, extra reading materials and experiment results can be included

### ***Conversion***

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme.

LETTER GRADE	PERCENT
A+	90 - 100
A	85 - 89
A-	80 - 84
B+	75 - 79
B	70 - 74
B-	60 - 69
F	00 - 59

## ACADEMIC DISHONESTY

It is the student's responsibility to understand what constitutes academic dishonesty. Please refer to

the University Senate Academic Integrity Policy at the following URL:

<http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>

This policy describes the responsibilities, procedures, and guidelines for students and faculty should a case of academic dishonesty arise. Academic dishonesty is defined as to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. Please refer to the policy for a list of examples. The policy also provides faculty with procedures to follow in cases of academic dishonesty as well as general guidelines for penalties. For further information related to the policy, please refer to the Office of Academic Integrity at:

<http://www.mcmaster.ca/academicintegrity>

### **MISSED ACADEMIC WORK**

Late assignments will not be accepted. No extensions are available except under extraordinary circumstances. Please discuss any extenuating situation with your instructor at the earliest possible opportunity.

### **POTENTIAL MODIFICATIONS TO THE COURSE**

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

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## **STUDENT ACCESSIBILITY SERVICES**

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for course work at the outset of term. Students must forward a copy of such SAS accommodation to the instructor normally, within the first three (3) weeks of classes by setting up an appointment with the instructor. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is:

<http://sas.mcmaster.ca>

<b>COURSE SCHEDULE</b>
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<b>READING LIST</b>	
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SESSION	ARTICLES
1	Rezapour, S., Allen, J. K., & Mistree, F. (2016). Reliable flow in forward and after-sales supply chains considering propagated uncertainty. <i>Transportation Research Part E: Logistics and Transportation Review</i> , 93, 409-436.
2	Duran, Orlando, and Paulo Sérgio Lima Pereira Afonso. "An activity based costing decision model for life cycle economic assessment in spare parts logistic management." <i>International Journal of Production Economics</i> (2019): 107499.
3	van Wijk, A. C. C., Adan, I. J., & van Houtum, G. J. (2019). Optimal lateral transshipment policies for a two location inventory problem with multiple demand classes. <i>European Journal of Operational Research</i> , 272(2), 481-495.
4	Shi, Z. (2019). Optimal Remanufacturing and Acquisition Decisions in Warranty Service Considering Part Obsolescence. <i>Computers &amp; Industrial Engineering</i> .
5	Johansson, L., & Olsson, F. (2018). Age-based inventory control in a multi-echelon system with emergency replenishments. <i>European Journal of Operational Research</i> , 265(3), 951-961.
6	Costantino, F., Di Gravio, G., Patriarca, R., & Petrella, L. (2018). Spare parts management for irregular demand items. <i>Omega</i> , 81, 57-66.
7	Inderfurth, K., & Kleber, R. (2013). An advanced heuristic for multiple-option spare parts procurement after end-of-production. <i>Production and Operations Management</i> , 22(1), 54-70.
8	Zanjani, M. K., & Noureldath, M. (2014). Integrated spare parts logistics and operations planning for maintenance service providers. <i>International Journal of Production Economics</i> , 158, 44-53.
9	Pourakbar, M., Frenk, J. B. G., & Dekker, R. (2012). End-of-life inventory decisions for consumer electronics service parts. <i>Production and Operations Management</i> , 21(5), 889-906.