

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW COURSE PROPOSAL</b> <b>Graduate Programs</b>		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____
	<b>Department : Information Technology and Operations Management</b> <b>College : Business</b> <i>(To obtain a course number, contact erudolph@fau.edu)</i>		
<b>Prefix</b> ISM  <b>Number</b> 7886	<i>(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)</i> <b>Lab Code</b>	<b>Type of Course</b> Lecture	<b>Course Title</b> Big Data Research Methods
<b>Credits</b> <i>(Review Provost Memorandum)</i> <b>3</b>	<b>Grading</b> <i>(Select One Option)</i>  Regular  Sat/UnSat	<b>Course Description</b> <i>(Syllabus must be attached; see Guidelines)</i> A discussion-driven seminar in big data research methods with advanced study of selected research topics. It emphasizes on academic journal articles on big data.	
<b>Effective Date</b> <i>(TERM &amp; YEAR)</i> <b>Fall2021</b>	<b>Prerequisites</b>  <b>Academic Service Learning (ASL) course</b> Academic Service Learning statement must be indicated in syllabus and approval attached to this form.		
<b>Prerequisites, Corequisites and Registration Controls are enforced for all sections of course.</b>		<b>Corequisites</b> N/A	<b>Registration Controls</b> <i>(For example, Major, College, Level)</i> Admission to an FAU PhD program or faculty approval
<b>Minimum qualifications needed to teach course:</b> Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.)		<b>List textbook information in syllabus or here</b> Creswell, J. W., & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 5th Ed. Thousand Oaks, CA: Sage Publications. ISBN-13: 978-1506386706	
<b>Faculty Contact/Email/Phone</b> Chul Woo Yoo/yooc@fau.edu/561-297-2532		<b>List/Attach comments from departments affected by new course</b> N/A	

<b>Approved by</b> Department Chair _____ College Curriculum Chair _____ College Dean <b>Ken Johnson</b> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Digitally signed by Ken Johnson Date: 2021.03.22 14:04:01 -04'00'	<b>Date</b> 02/11/2021 3/15/21 3/22/21
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Email this form and syllabus to [UGPC@fau.edu](mailto:UGPC@fau.edu) 10 days before the UGPC meeting.



**ISM7886**  
**CRN #: ...**  
**Big Data Research Methods**  
**Fall 202X**  
**3 Credit Hours**

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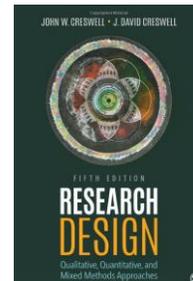
**Instructor:** ...  
**Office Location:** ...  
**Virtual Office Hours:** ...  
**E-Mail:** ...  
**Office Phone:** ...

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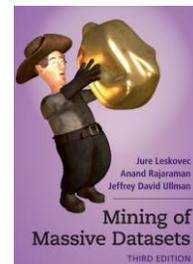
## REQUIRED TEXTS & MATERIALS

In this course, you will need the following textbooks:

Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 5th Ed. Thousand Oaks, CA: Sage Publications. ISBN-13: 978-1506386706



Leskovec, J., Rajaraman, A., & Ullman, J. D. (2014). *Mining of massive datasets*. Cambridge University Press. Available here: <http://www.mmds.org/>



Journal articles and other readings, as appropriate, will be made available on the course website. Please see the tentative schedule.

## COURSE DESCRIPTION

A discussion-driven seminar in big data research methods with advanced study of selected research topics. It emphasizes on academic journal articles on big data.

## COURSE PREREQUISITES AND CREDIT HOURS

Admission to a Ph.D. program or faculty approval. This course is 3 credits.

## COURSE OBJECTIVES

The objective of this course is to expose participants to big data research methods, in order to help them broaden their ability to perform big data analytics related research.

The course will involve reading about research design, reviewing and discussing existing research, as well as conducting research of one's own. By the end of the course each student will be expected to produce a publishable research article that is relevant to his or her own research area of interest. As different topics and different aspects of the research process are covered over the course of the semester, participants also will be expected to contribute to class discussions, both as facilitators and as discussants.

## COURSE ASSESSMENTS, ASSIGNMENTS & GRADING POLICY

### Grading Criteria

The instructor will calculate your grade based on the following weighted distribution:

<b>Weighted Grade Category</b>	<b>% total grade</b>
Class participation	20
Written assignments / reading responses	25
Leading discussions	25
Research paper	30
<b>TOTAL:</b>	<b>100</b>

### Written assignments / reading responses:

Be prepared to summarize the main points of each reading and to discuss the following questions:

- What are the most important insights that you obtained from the reading?
- What are the strengths and weaknesses of the reading?
- What are the boundary conditions of the argument being made? i.e., for whom and under what circumstances does the argument apply and not apply?
- How does the article relate to others read in previous weeks?

Using these questions as a guideline, you should submit a set of bullet points (maximum three-page) for each day's reading that highlights interesting, intriguing, or perhaps confusing aspects of the material.

### **Leading discussions**

Each student is responsible for leading the discussion for several research articles over the course of the semester. As part of this, you should prepare a presentation to the class on the day that an assigned article is discussed in class. Please be creative! The purpose of the presentation is not simply to summarize the article (although a brief summary of key points might be useful to ground the discussion), but to bring your own fresh perspective/feedback on the ideas expressed by the authors. A good contribution will pose interesting questions, cite additional literature, extend the models and stimulate further inquiry and class discussion.

### **Research paper**

You are expected to conceptualize, develop, and write a research article and to have it ready or submission by the end of the course. Although there is no requirement that the paper be successfully submitted to a journal, the article should be motivated by, and modeled after, a journal publication. Because it is challenging to publish one's research, even if it is good work, please start planning and discussing your ideas with the instructor early in the semester. Project deliverables will include a research proposal and a presentation of your project to the class, along with the final research paper itself.

### **Grading Scale**

<b>A</b>	93.00-100%	<b>C</b>	73-76.99%
<b>A-</b>	90-92.99%	<b>C-</b>	70-72.99%
<b>B+</b>	87-89.99%	<b>D+</b>	67-69.99%
<b>B</b>	83-86.99%	<b>D</b>	63-66.99%
<b>B-</b>	80-82.99%	<b>D-</b>	60-62.99%
<b>C+</b>	77-79.99%	<b>F</b>	< 60 %

### **Late Assignments Policy**

Canvas assignment pages will close at the stated due dates and times. Late work will not be accepted without a university-recognized excuse. Students must e-mail instructor to inquire whether late work will be accepted. If an assignment is not submitted on time, it will earn a score of 0 points.

### **Make-up Policy for Tests: N/A**

### **Incomplete Grade Policy**

The University policy states that a student who is passing a course but has not completed all work due to exceptional circumstances, may, with consent of the instructor, temporarily receive a grade of incomplete ("I"). The assignment of the "I" grade is at the discretion of the instructor but is allowed only if the student is passing the course.

### **Online Attendance Policy**

Since the course is online, you should access the course **at least three times per week** to ensure you do not miss pertinent postings, messages, or announcements. It is imperative

that you meet course deadlines and stay active in discussion boards, group projects, etc. If you are experiencing major illness, absences due to University duties, or other large-scale issues, contact the instructor immediately to formulate a resolution.

### **Etiquette and/or Netiquette Policy**

Due to the casual communication common in the online environment, students are sometimes tempted to relax their grammar, spelling, and/or professionalism. Please remember that you are adult students and professionals—your communication should be appropriate. For more in-depth information, please see the [FAU Statement on Netiquette](#).

- Each student is responsible for keeping up with the class schedule, checking your FAU email account, and checking the course Canvas site on a regular basis.
- If you use a non-FAU email address as your primary address, arrange for FAU email to be forwarded.
- **Please use email to contact me**

### **Anti-plagiarism Software**

- Written components of any assignment or project may be submitted to anti-plagiarism software to evaluate the originality of the work. Any students found to be submitting work that is not their own will be deemed in violation of the University's honor code discussed above.

### **Student Responsibilities**

#### **Students are responsible:**

- To read the required material (designated chapters) for each week.
- To review the class schedule provided on Canvas often to know important course due dates (Tests, quizzes, etc).
- For all material covered and assignments/exams announced during their absence.

## **Selected University and College Policies**

### **Code of Academic Integrity Policy Statement**

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty.

For more information, please see FAU Regulation 4.001 at: [FAU Regulation 4.001](#).

### **Disability / Accessibility Policy Statement**

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework

must register with **Student Accessibility Services (SAS)** and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at [www.fau.edu/sas/](http://www.fau.edu/sas/).

### **Counseling and Psychological Services (CAPS) Center**

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling>.

### **Religious Accommodation Policy Statement**

In accordance with rules of the Florida Board of Education and Florida law, students have the right to reasonable accommodations from the University in order to observe religious practices, observances, and beliefs with regard to admissions, registration, class attendance and the scheduling of examinations and work assignments.

For further information, please see FAU Regulation 2.007 at: [FAU Regulation 2.007](#).

### **University Approved Absence Policy Statement**

In accordance with rules of the Florida Atlantic University, students have the right to reasonable accommodations to participate in University approved activities, including athletic or scholastics teams, musical and theatrical performances and debate activities. It is the student's responsibility to notify the course instructor at least one week prior to missing any course assignment.

### **Incomplete Grade Policy Statement**

A student who is passing a course, but has not completed all work due to exceptional circumstances, may, with consent of the instructor, temporarily receive a grade of incomplete ("I"). The assignment of the "I" grade is at the discretion of the instructor, but is allowed only if the student is passing the course.

The specific time required to make up an incomplete grade is at the discretion of the instructor. However, the College of Business policy on the resolution of incomplete grades requires that all work required to satisfy an incomplete ("I") grade must be completed within a period of time not exceeding one calendar year from the assignment of the incomplete grade. After one calendar year, the incomplete grade automatically becomes a failing ("F") grade.

### **Withdrawals**

Any student who decides to drop is responsible for completing the proper process required to withdraw from the course.

### **Grade Appeal Process**

A student may request a review of the final course grade when s/he believes that one of the following conditions apply:

- There was a computational or recording error in the grading.
- Non-academic criteria were applied in the grading process.
- There was a gross violation of the instructor's own grading system.

The procedures for a grade appeal may be found in [FAU Regulation 4.002](#).

### **Disruptive Behavior Policy Statement**

Disruptive behavior is defined in the FAU Student Code of Conduct as “... *activities which interfere with the educational mission within classroom.*” Students who behave in the classroom such that the educational experiences of other students and/or the instructor's course objectives are disrupted are subject to disciplinary action. Such behavior impedes students' ability to learn or an instructor's ability to teach. Disruptive behavior may include, but is not limited to: non-approved use of electronic devices (including cellular telephones); cursing or shouting at others in such a way as to be disruptive; or, other violations of an instructor's expectations for classroom conduct.

### **Faculty Rights and Responsibilities**

Florida Atlantic University respects the right of instructors to teach and students to learn. Maintenance of these rights requires classroom conditions which do not impede their exercise. To ensure these rights, faculty members have the prerogative:

- To establish and implement academic standards
- To establish and enforce reasonable behavior standards in each class

To refer disciplinary action to those students whose behavior may be judged to be disruptive under the Student Code of Conduct.

**Course Schedule:** Topics and Due Dates are subject to change.

Week	Date	Topics	Reading
1		Introduction to Big Data	- Abbasi, A., Sarker, S., & Chiang, R. H. (2016). Big data research in information systems: Toward an inclusive research agenda. <i>Journal of the Association for Information Systems</i> , 17(2), 3. - Creswell book: Chapter 1 - Leskovec book: Chapter 1
2		Big Data Tools and Technologies Part 1	- Pusala, M. K., Salehi, M. A., Katukuri, J. R., Xie, Y., & Raghavan, V. (2016). Massive data analysis: Tasks, tools, applications, and challenges. In <i>Big Data Analytics</i> (pp. 11-40). Springer, New Delhi. - Creswell book: Chapter 2 - Leskovec book: Chapter 2
3		Big Data Tools and Technologies Part 2	- Hadoop Tutorial - Creswell book: Chapter 3
4		Big Data Streaming	- Wixom, B., Ariyachandra, T., Douglas, D., Goul, M., Gupta, B., Iyer, L., ... & Turetken, O. (2014). The current state of business intelligence in academia: The arrival of big data. <i>Communications of the Association for Information Systems</i> , 34(1), 1. - Creswell book: Chapter 4 - Leskovec book: Chapter 4
5		Big Data and Design Science	- Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design science in information systems research. <i>MIS quarterly</i> , 75-105. - Rai, A. (2017). Editor's comments: Diversity of design science research. <i>MIS quarterly</i> , 41(1), iii-xviii. - Creswell book: Chapter 5
6		Association Rules in Big Data	- Chen, Y., Li, F., & Fan, J. (2015). Mining association rules in big data with NGEP. <i>Cluster Computing</i> , 18(2), 577-585. - Creswell book: Chapter 6 - Leskovec book: Chapter 6
7		Big Data Analytics and Machine Learning Part 1	- L'heureux, A., Grolinger, K., Elyamany, H. F., & Capretz, M. A. (2017). Machine learning with big data: Challenges and approaches. <i>IEEE Access</i> , 5, 7776-7797. - Creswell book: Chapter 7 - Leskovec book: Chapter 12
8		Final Project Proposal Presentation	- Creswell book: Chapter 8
9		Guest Speaker: Big Data Research	TBD

10		Big Data Analytics and Machine Learning Part 2	<ul style="list-style-type: none"> <li>- Beam, A. L., &amp; Kohane, I. S. (2018). Big data and machine learning in health care. <i>JAMA</i>, 319(13), 1317-1318.</li> <li>- Obermeyer, Z., &amp; Emanuel, E. J. (2016). Predicting the future—big data, machine learning, and clinical medicine. <i>The New England journal of medicine</i>, 375(13), 1216.</li> <li>- Creswell book: Chapter 9</li> <li>- Leskovec book: Chapter 13</li> </ul>
11		Industry 4.0 and Internet of Things	<ul style="list-style-type: none"> <li>- Xu, L. D., Xu, E. L., &amp; Li, L. (2018). Industry 4.0: state of the art and future trends. <i>International Journal of Production Research</i>, 56(8), 2941-2962.</li> <li>- Riggins, F. J., &amp; Wamba, S. F. (2015, January). Research directions on the adoption, usage, and impact of the internet of things through the use of big data analytics. In 2015 48th Hawaii International Conference on System Sciences (pp. 1531-1540). IEEE.</li> <li>- Creswell book: Chapter 10</li> </ul>
12		Social Media Big Data	<ul style="list-style-type: none"> <li>- Schroeder, R. (2014). Big Data and the brave new world of social media research. <i>Big Data &amp; Society</i>, 1(2), 1-11.</li> <li>- Leskovec book: Chapter 10</li> </ul>
13		Recommendation System	<ul style="list-style-type: none"> <li>- Zihayat, M., Ayanso, A., Zhao, X., Davoudi, H., &amp; An, A. (2019). A utility-based news recommendation system. <i>Decision Support Systems</i>, 117, 14-27.</li> <li>- Leskovec book: Chapter 9</li> </ul>
14		Guest Speaker: Big Data in Practice	TBD
15		Research paper presentations	

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**The instructor reserves the right to adjust this syllabus as necessary.**