

ISM 425 Business Analytics

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CATALOG DESCRIPTION:

Study of the techniques and methods of business analytics, including gathering, processing and analyzing large volumes of data to generate insights that inform business decisions.

PREREQUISITES:

ECO 250 and either ISM 218 or ACC 325. ISSCM major or Information Technology minor.

STUDENT LEARNING OUTCOMES (SLOs):

Upon completion of this course, students will demonstrate a broad knowledge and clear understanding of critical concepts, practices and issues in developing and using Business Analytics (BA) models and methods.

Specific course outcomes are:

1. Demonstrate an understanding of Business Analytics
2. Identify, design and assess different business analytics methodologies
3. Prepare and formulate data collection, sampling, preprocessing
4. Describe data quality controls
5. Explore and develop descriptive and predictive analytic models
6. Apply and assess different predictive modeling techniques
7. Evaluate efficacy of different analytics model implementations
8. Demonstrate proficiency in the use of SAS Enterprise Guide and Enterprise Miner

COURSE MATERIAL

This course blends lecture presentation, assignments, case studies, discussions, exams and a research project to achieve its learning outcomes. All teaching material, including textbooks, assignments, handouts and other learning resources needed for this course are available electronically at the course Canvas site. It is your responsibility to read the assigned readings. Please sign into Canvas to gain access to the material and check for **updates frequently**, as I upload new content throughout the semester.

REQUIRED TEXTBOOKS

1. *Applied Analytics Using SAS® Enterprise Miner™ Course Notes* was developed by Peter Christie, Jim Georges, Jeff Thompson, and Chip Wells. Additional contributions were made by Robert Blanchard, Tom Bohannon, Mike Hardin, Dan Kelly, Jay Laramore, Bob Lucas, André de Waal, and Sue Walsh. ISBN 978-1-63526-196-7. Editing and production support was provided by the Curriculum Development and Support Department. Copyright © 2017 SAS Institute Inc. Cary, NC, USA. This textbook is available free via Canvas. I will refer to this text as AA.
2. *Advanced Predictive Modeling Using SAS® Enterprise Miner™ Course Notes* was developed by Jim Georges and Christina Andersson and revised by Jeffrey Thompson and Chip Wells. Additional contributions were made by Mike Patetta, Catherine Truxillo, Anette Almer, Stefan Ahrens, Tamara Fischer, Mihai Paunescu, Torsten Scholz, and Reinhard Struby. Editing and

production support was provided by the Curriculum Development and Support Department. Copyright © 2017 SAS Institute Inc. Cary, NC, USA. This textbook is available free via Canvas. I will refer to this text as AP.

3. *SAS® Enterprise Guide 1™: Querying and Reporting Course Notes*, by Stacey Syphus. Additional contributions were made by Richard Bell and Davetta Dunlap. Editing and production support was provided by the Curriculum Development and Support Department. Copyright © 2016 SAS Institute Inc. Cary, NC, USA. ISBN 978-1-62960-127-4. This textbook is available free via Canvas. I will refer to this text as EG1.
4. *SAS® Enterprise Guide 2™: Advanced Tasks and Querying*, Stacey Syphus. Additional contributions were made by Randy Cates, Lise Cragen, Marty Hultgren, and Kenny Sucher. Editing and production support was provided by the Curriculum Development and Support Department. Copyright © 2016 SAS Institute Inc. Cary, NC, USA. ISBN 978-1-62960-128-1. This textbook is available free via Canvas. I will refer to this text as EG 2.
5. Other articles and supplemental reading material on different topics covered in the course are also available for free via Canvas.

SOFTWARE NEEDED FOR THE COURSE:

This course makes extensive use of *SAS® Enterprise Guide™* (EG) and *Enterprise Miner™* (EM). EG and EM are the leading data analytics tools available in the market and are part of SAS suite of products that constitute perhaps the powerful analytical tools. Both EG and EM can be accessed from any computer lab throughout the UNCG campus as well UNCG’s mycloud. Instructions as how to do access them via UNCG mycloud (mycloud.uncg.edu) can be found on Canvas. As a UNCG student, you can also get your own free personal copy of SAS and install it on your computer. Please note that personal installation is not available on Mac OS. *SAS®* is a very expensive software and having your own personal copy is a good idea. The instruction for getting your personal copies can be found at <http://its.uncg.edu/software/available/sas/>. You need to do this during the first couple of weeks of the term.

EVALUATION AND GRADING:

Contribution and Participation to class discussion	5%
Assignments	50%
Enterprise Guide Exam	10%
Enterprise Miner Exam	15%
Final Exams	<u>20%</u>
Total	100%

Your letter grade will be based on the following distribution: Grades are truncated, not rounded.

Points	Grade	Points	Grade	Points	Grade	Points	Grade
930-1000	A	830-879	B	730-779	C	630-679	D
900-929	A-	800-829	B–	700-729	C–	600-629	D–
880-899	B+	780-799	C+	680-699	D+	< 600	F

COURSE ASSIGNMENTS

You will have four topical assignments each dealing with a specific set of topics in business analytics. The assignments use *Enterprise Guide*[™] and *Enterprise Miner*[™]. Some assignments may require group work. Details about assignments and due dates will be announced during the class. Assignments submitted after the due date may not be accepted unless extenuating circumstances can be documented. In such cases, they are subject to a grading penalty of a minimum of 20% reduction for each day late.

EXAMS

We have two timed hands-on exams. The first exam is based on *Enterprise Guide* and the second exam is based on *Enterprise Miner*. We also have cumulative final exam administered at the end of the semester. The exam will test your knowledge of business analytics topics and the use of software. Please make sure you attend class in order not to miss any exams. No make-up will be allowed under any circumstance on missed exams. I will discuss the details of each exam during the semester.

ATTENDANCE POLICY:

Each student is required to attend online classes that are presented using WebEx. Attendance may count toward your final grade. It is the student's responsibility to stay on track with readings and assignments to be successful in the course.

POLICY ON SERVER UNAVAILABILITY OR OTHER TECHNICAL DIFFICULTIES

The university is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide

ELECTRONIC MAIL AND ACCOUNTS:

You should check your UNCG email and Canvas Course link regularly as I may send email updates or add new info on Canvas on an ongoing basis. You will be responsible for any information or announcements contained in the email messages or updates on Canvas.

ACADEMIC INTEGRITY, ETHICAL ISSUES AND THE HONOR CODE POLICIES:

Students are responsible for becoming familiar with the UNCG's Academic Integrity Policies that are strictly enforced in this class. You may UNCG's Academic Integrity Policies at this web site at <http://academicintegrity.uncg.edu>.

Course Outline¹

Week	Topic
Weeks of 1 and 2	Introduction to the Course Introduction to Business Analytics Introduction to Descriptive Analytics and Predictive Analytics Get Started with EG Lab
Week 3	Descriptive Analytics Modeling Data and SAS Enterprise Guide EG Lab
Week 4	Data, Data, Data Everywhere Accessing and Preparing Data Dimensional vs Relational Data presentation Advanced topics in EG Lab
Week 5	Predictive Analytics Modeling Get Started EM Lab EG Exam
Week 6	Predictive Analytics Modeling using Decision Trees EM Lab
Week 7	Predictive Analytics Modeling using Regressions EM Lab
Week 8	Predictive Analytics Modeling using Neural Networks, SVM, Random Forest and Other Modeling Tools EM Lab
Week 9	Introduction to Cluster Analysis Advanced Topic in EM Lab
Week 10	Market Basket Analysis Advanced Topic in EM Lab
Week 11	Predictive Analytics Model Assessment Model Implementation Advanced Topic in EM Lab
Week 12	Business Analytics Organizational and Managerial Issues Business Analytics Privacy and Ethical Issues EM Exam
Weeks 13- 14	Prepare for your final exam Final Exam

¹ This schedule is tentative, and changes may be required during the semester.