FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL

DEPARTMENT NAME: INFORMATION TECHNOLOGY & OPERATIONS MANAGEMENT

COLLEGE OF: BUSINESS

RECOMMENDED COURSE IDENTIFICATION:

PREFIX _ISM_____   COURSE NUMBER ____6404_____   LAB CODE (L or C) __ __

INSTRUCTIONAL METHOD (V, BB, IC, EC, ETC.): BB

COMPLETE COURSE TITLE: ADVANCED BUSINESS ANALYTICS

EFFECTIVE DATE (first term course will be offered): FALL 2012

| CREDITS: 3 | LAB/DISCUSSION: | TEXTBOOK INFORMATION: SEE ATTACHED SAMPLE SYLLABUS |
| LECTURE: Y | FIELD WORK: | |

GRADING: REGULAR __X__   PASS/FAIL_____   SATISFACTORY/UNSATISFACTORY _____

COURSE DESCRIPTION, NO MORE THAN 3 LINES: AN IN-DEPTH EXAMINATION OF BUSINESS ANALYTICS (BA) METHODS OF VISUALIZATION, DATA MINING, TEXT MINING, AND WEB MINING USING VARIOUS ANALYTICAL TOOLS IS UNDERTAKEN. APPLICATIONS ~~TO SMALLER~~ FIRMS ARE INVESTIGATED IN A LABORATORY SETTING. *FOR*

PREREQUISITES: FULLY ADMITTED GRADUATE STUDENTS

O *Check box to enforce**

COREQUISITES:

O *Check box to enforce**

OTHER REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL):
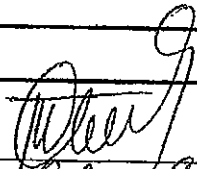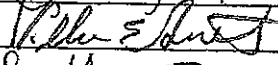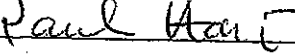
O *Check box to enforce**

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: TERMINAL DEGREE IN APPROPRIATE FIELD

Other departments, colleges that might be affected by the new course must be consulted. List entities that have been consulted and attach written comments from each.

Faculty Contact, Email, Complete Phone Number
Dr. Robert Cerveny, cerveny@fau.edu, (561) 297-4008

SIGNATURES

SUPPORTING MATERIALS

Approved by:	Date:	Syllabus—must include course objectives.
Department Chair: _____	2/6/12	Written Consent—required from all departments affected.
College Curriculum Chair: _____	2/10/12	
College Dean: _Paul Hart_	2.24.12	Go to: *http://graduate.fau.edu/gpc/* to download this form
UGPC Chair: _____		
Dean, Graduate Studies _____		

* "Enforce" prerequisites or other registration controls adds these restrictions to the course schedule; students whose academic careers do not show these prerequisites or other details will not be able to register. When box is not checked, restrictions show in catalog description only.

Email this form and syllabus to Graduate Studies one week *before* the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website by committee members prior to the meeting.

COURSE TITLE/NUMBER, NUMBER OF CREDIT HOURS:

**ISM 6404
Section 001
Advanced Business Analytics
3 credit hours**

COURSE LOGISTICS:

Term:	
Class Location:	
Time:	

INSTRUCTOR CONTACT INFORMATION:

Instructor:	
Office Address:	
Office Hours:	
Phone:	
FAX:	
E-mail:	

COURSE DESCRIPTION: An in-depth examination of Business Analytics (BA) methods of visualization, data mining, text mining, and web mining using various analytical tools is undertaken. Applications to smaller firms are investigated in a laboratory setting.

COURSE OBJECTIVES/STUDENT LEARNING OUTCOMES: ISM 6404, Advanced Business Analytics, is a 3 hour projects-based course that provides an in-depth understanding of Business Analytics (BA) methods of visualization, data mining, text mining, and web mining through the use of specific BA tools. It involves using such tools with publicly available real world business data sets to develop and present actionable analysis. It is further designed to give those with basic Excel knowledge, as well as those with more advanced Excel abilities, more of what organizations need and value for data mining, business analytics and reporting. Additional skills such as when and how to use pivot tables, macros, how to automate and integrate downloads of data into reports with one click, form creation, graphing, and the creation and use of simulation and decision support modeling are all are covered in a hands-on lab setting Using Excel 2010 and VBA. Business analytics as applied to smaller firms is investigated.

REQUIRED TEXTS:

Texts:
<u>VBA for Modelers, Developing Decision Support Systems with Microsoft Office Excel Fourth Edition</u> by S. Christian Albright, published by South-Western CENGAGE Learning, Mason, OH 45040, 2012 ISBN-13: 9781439079843. This book may be purchased from on-line book sellers as well as local bookstores. (Available at Cengage in both hard copy and e-book. Should costs between $60 and $110. See http://www.cengagebrain.com/shop/isbn/9781133190875)

<u>Analytics at Work: Smarter Decisions, Better Results</u>, by Thomas H. Davenport, Jeanne G. Harris and Robert Morison, Harvard Business Press, Boston, MA, 2010 ISBN-13 978-I-422I-7769-3 (hardcover) This book may be purchased from on-line book sellers as well as local bookstores and in soft cover. . (Should cost somewhere around $20 .. See Amazon or other on-line sellers.)

SPECIAL COURSE REQUIREMENTS:

Blackboard: You must use Blackboard to retrieve class notes, take tests, and to receive class e-mail from me. Go to http://blackboard.fau.edu to log in.

E-mail: Students wishing to send the instructor e-mail messages **must** include ISM 6930 in the subject line. It is your responsibility to check your e-mail frequently. E-mail from me will be sent to your FAU account. If you forward it to another account, you must make sure that is set up correctly.

Computer: You must have access to a computer running Excel 2010. FAU open computer labs are available for your use if necessary. There is a student version of the product available at a discount. Also, there is a trial version that is available from Microsoft.

Web Assist Course: This course will make use of the Blackboard Internet feature. Lecture material and homework assignments will be posted on Blackboard, with due dates. Grade information will also be found there. We will experiment with an occasional on-line session using Blackboard Collaborate. Additionally there will be occasional on-line discussion periods. The times of these discussion periods will be determined as the semester progresses.

PREREQUISITES: Fully admitted graduate students.

COURSE EVALUATION METHOD:

Component:	Weight
Homework	30%
Class Participation	20%
Term Paper	15%
Exams	35%

Course Grading Scale:

A	=	(93-100) %	**C**	=	(73-76.99) %
A-	=	(90-92.99) %	**C-**	=	(70-72.99) %
B+	=	(87-89.99) %	**D+**	=	(67-69.99) %
B	=	(83-86.99) %	**D**	=	(63-66.99) %
B-	=	(80-82.99) %	**D-**	=	(60-62.99) %
C+	=	(77-79.99) %	**F**	=	< 60 %

Student mastery of the concepts of the course will be demonstrated through the use of homework problems solved by the student, in class discussions of topics between the student and the instructor, in-class team presentations and a combination of in-class and take-home exams and a term paper.

POLICY ON MAKEUP TESTS, LATE WORK, AND INCOMPLETES:

Homework: Homework is to be turned in by 4:00 pm on Monday of the week assigned (see course content and tentative schedule attached). Late homework (homework turned in before the assignment has been discussed in class) will lose 10% of its value. Homework turned in after an assignment has been discussed in class returned and/or a solution posted will lose 75% of its original value.

Teams: Students will be divided into teams for portions of the course.

Class Participation: There will be a discussion of the materials contained in the Davenport text starting the week of 1/30. Two teams will be responsible for leading the discussion each week. One team will lead the discussion and the other will comment on their presentation. However, this is meant to be a class activity so all members of the class are expected to have read the material and be prepared to comment on it.

Each team is to use library resources and/or the internet to find at least two unique references concerning business intelligence/business analytics from **different** sources, analyze the articles and prepare a **wiki** page for each article. A second team will be assigned to edit the **wiki** for each article to insure completeness and readability. All students will be responsible for reading the wikis and participating in the class discussion over the articles, led by the team which created the Wiki. Articles must be substantive, i.e. an announcement of a new product or a new release about a product does not count. The team will turn in a copy of the article when each **wiki** is posted.

We will make use of structured walkthroughs to examine how code in used and developed as part of the class participation activities. Students will be responsible for leading this examination each time.

Term Paper: The term paper will be a research paper covering an area of business analytics of interest to the students. Each team will submit a brief outline of the area to be covered the week of 2/20. The paper itself is due the week of 4/23, when each team will present the results of their research.

Exams and Exam Make-Up Policy: There will be two exams during the semester. The last one (the final) is cumulative in this course. These exams will be taken on-line during the time periods noted in the course content outline.

A student who is unable to take an exam due to an emergency must inform me of that fact on or earlier than the day of the exam (except for extreme cases, i.e., you are in a coma in the hospital due to a car accident suffered on the way to the exam) and arrange for a make-up exam before the graded exam is returned to the class. Any student requiring a make-up will have to document his/her excuse (e.g., a letter from a physician written on the physician's letterhead stating the nature of illness *and its severity*). Exams missed without prior approval (or documented proof that the unapproved absence was unavoidable) cannot be made up. In no event will a make-up be given after the graded exam is returned to the class, which is usually the week after the exam is scheduled.

Incompletes: University policy states that an incomplete may be given only if a student has a passing grade in the course. An incomplete is only meant for students who are unable to complete the course due to severe hardships beyond their control. It is not meant to accommodate students who decide that the workload is too heavy. If an "I" is given, work must be completed within the time period specified by the instructor which is not to exceed 12 months from the time the incomplete is given.

Religious Accommodation: 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 and beliefs with regard to admissions, registration, class attendance and the scheduling of examinations and work assignments.

For further information, please see
http://www.fau.edu/academic/registrar/catalog/academics.php

Students Representing The University At Official Functions: Students representing
the University at official functions will not be penalized for missing exams or quizzes
while performing these functions. Reasonable accommodations will be made to allow
the student to make up the work, usually after the majority of the class has taken the
exam or quiz. It is up to the student to bring to the instructor's attention the need for the
accommodation, both by presenting the instructor a University form attesting to the need
for the accommodation and by reminding the instructor of the event close to its
occurrence.

CLASSROOM ETIQUETTE POLICY: Inappropriate behavior distracts other students and
interferes with their learning experience. Inappropriate behavior would include rude and
inappropriate comments in either live or on-line discussions. Additionally, in order to enhance
and maintain a productive atmosphere for education, personal communication devices, such as
cellular telephones and pagers, are to be disabled in class sessions. Behavioral deviation from
these policies will not be tolerated. Since it is my responsibility to provide an environment that
is conducive to learning for everyone in the class, I will deduct points from the final grade of a
student who chooses to repeatedly distract others. In particularly egregious cases, I will have the
student permanently removed from the class.

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 I 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, see the College of Business Academic Honesty Policy at
http://business.fau.edu/undergraduate/current-students/academic-policies/academic-honesty-
policy/index.aspx.

While the FAU Honor Code governs all student activities throughout the course, there are some
specific comments which are applicable.

Homework is to be an individual effort. It is certainly permissible to work with other students on
assignments, but the final result turned in must be your own work. It is almost impossible for a
program of any size above trivial to use identical variables, algorithms and computer memory.
Having said that, you may incorporate code you find from other sources as long as you properly
reference the sources. (Reuse of code is one of the objectives of object oriented programming
after all). However, cheating, plagiarism, and unauthorized collaboration are unacceptable and
subject to disciplinary actions. Plagiarism is turning in someone else's ideas as your own work.
Cheating is copying from someone or giving your work to someone else. Such actions may
include an "F" in the course and the placement of a letter of fact in your student record in
accordance with the rules of the University and the College of Business.

DISABILITY POLICY STATEMENT: In compliance with the Americans with Disabilities
Act (ADA), students who require special accommodation due to a disability to properly execute

course work must register with the Office for Students with Disabilities (OSD) – in Boca Raton, SU 133 (561-297-3880); in Davie, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305) – and follow all OSD procedures.

If you are recognized as a student with learning disability by the university, please provide the necessary documentation as soon as possible (no later than the first two weeks of the semester) so that I can make arrangements for you to take tests, etc., according to the prescribed procedures. If you have any other special needs please let me know. If you don't inform me of your special status and arrange for the paperwork with the Office Students with Disabilities, you will be given the same status as the rest of the students in class until you have provided the required information and the Office Students with Disabilities. Grades will not be changed retroactively based on any information provided late.

For further information, please see http://www.fau.edu/eop/ada/ada_policy.php

COURSE TOPICAL OUTLINE, INCLUDING DATES FOR EXAMS/QUIZZES, PAPERS, COMPLETION OF READINGS: The table below contains a schedule of topics by week. Please note that the dates given are the Monday for the class. For example, the material assigned under 1/23 will be the topic for that week. Homework assignments over the material will be found in the assignments section of Blackboard. Assignment due dates are given with the assignments in Blackboard.

Schedule of Events

Week	Topic	Text	Homework
1	Introduction	VBA Ch 1	
2	Excel Review & Intro to VBA	VBA Ch 2,4, & 5	
3	Analytics at Work Ranges	Dav, Ch 1 VBA Ch 6	HW 1
4	Data Control Structures, Excel Objects	Dav, Ch 2 VBA Ch 7 & 8	HW 2
5	Enterprise Arrays	Dav, Ch 3 VBA Ch 9	HW 3
6	Leadership, Term Paper Outline Subroutines & Functions	Dav, Ch 4 VBA Ch 10	HW 4
7	Mid Term Exam		
8	Spring Break		
9	Targets User Forms	Dav, Ch 5 VBA Ch 11	
10	Analysis Error Handling and Advanced User Forms	Dav, Ch 6 VBA Ch 12 & 11	
11	Embed Analytics in Business Processes Files, Folders and Databases	Dav, Ch 7 VBA Ch 13 & 14	HW 5
12	Build an Analytical Culture Excel/VBA Pivot Tables an Charts	Dav, Ch 8 VBA Ch 15	
13	Review Your Business Comprehensively BI Applications	Dav, Ch 9 TBA	HW 6
14	Special Topics	Dav, Ch 10 TBA	
15	Team Paper presentations	Dav, Ch 11	HW 7
16	Final Exam		

The above is tentative and I reserve the right to change it depending upon the progress of the class.

REFERENCES:

Publicly Available Databases

Web based data from a variety of sources, including Yahoo Finance, the Pew Research Center, SEC data bases, State and U.S. Government databases.

Publicly Available Databases via University of Arkansas and the Teradata University Network

Sam's Club Database: 6 tables with more than 55 million rows of Sales transaction data from 18 stores between January 1 and January 31, 2000.

Dillard's Department Stores Database: 5 tables with more than 128 million rows that contains retail sales transactions from 453 stores from August 2004 through August 2005.

Frozen Foods, Inc. Database: 6 dimension tables linked to a fact table containing almost 12 million rows of COPA database, with cost and profitability analysis data spanning two years from January 2004 to December 2005.

Hallux Productions Database: 25 tables with more than one million rows that contains synthetic data which consists of customer information, bookings, marketing, and album sales and distribution from January 1990 to December 2006 .

Books

Title: Web Mining Applications in E-commerce and E-services
Authors: I-Hsien Ting (Editor), Hui-Ju Wu (Editor)
ISBN: 13-978-3540880806
Publisher: Springer (2010)

Title: Business Intelligence: Data Mining and Optimization for Decision Making
Author: Carlo Vercellis
ISBN: 13-978-0470511398
Publisher: John Wiley & Sons Inc (2009)

Title: Text Mining: Theory, Application, and Visualization
Authors: Ashok Srivastava (Editor), Mehran Sahami (Editor)
ISBN: 13-978-1420059403
Publisher: Chapman & Hall/CRC, 1 edition (2009)

Title: Decision Support and Business Intelligence Systems (9th Edition)
Authors: Efraim Turban, Ramesh Sharda and Dursun Delen
ISBN: 13-978-0136107293
Publisher: Prentice Hall (2010)

Title: Business Intelligence (2nd Edition)
Authors: Efraim Turban, Ramesh Sharda, Dursun Delen and David King

Title: Decision Support Systems in the 21st Century, 2nd edition
Author: George M. Marakas
ISBN: 0-13-092206-4
Publisher: Prentice Hall (2002)

Title: Mining the Talk: Unlocking the Business Value in Unstructured Information
Authors: Scott Spangler and Jeffrey Kreulen
ISBN: 0-13-233953-6
Publisher: IBM Press (2007)

Title: Data and Text Mining: A Business Applications Approach
Authors: Thomas W. Miller
ISBN: 0-13-140085-1
Publisher: Prentice Hall (2004)

Title: Introduction to Data Mining
Authors: Pang-Ning Tan, Michael Steinbach, and Vipin Kumar
ISBN: 0-321-32136-7
Publisher: Addison Wesley (2005)

Title: Introduction to Business Data Mining
Authors: David Olson and Yong Shi
ISBN: 0-07-295971-1
Publisher: McGraw Hill (2005)

Title: MIS Cases: Decision Making with Application Software
Authors: Lisa Miller
ISBN: 0-13-238105-2
Publisher: Prentice Hall (2006)

Title: Microsoft® Excel® 2010: Data Analysis and Business Modeling
Authors: Wayne L. Winston
ISBN: 978-0-7356-4336-9
Publisher: Microsoft Press (2011)

Title: Spreadsheet Modeling and Decision Analysis, 6th edition
Authors: Cliff T. Ragsdale
ISBN: 978-0-538-74632-8
Publisher: Thomson South-Western (2010)

Title: A Fast-Track to Structured Finance Modeling, Monitoring, and Valuation: Jump Start VBA
Authors: William Preinitz
ISBN: 978-0-470-39812-8
Publisher: Wiley (2009)

Title: Data Mining for Business Intelligence, Concepts, Techniques, and Applications in Microsoft Office Excel with XLMiner,2E
Authors: Galit Shmueli, Nitin R. Patel and Peter C. Bruce
ISBN: 978-0-470-52682-8
Publisher: Wiley (2010)

Title: Microsoft Excel VBA Programming, 3E
Authors: Duane Birnbaum and Michael Vine
ISBN: 978-1-59863-394-8
Publisher: Course Technology Cengage (2007)

Title: Financial Analysis and Modeling Using Excel and VBA
Authors: Chandan Sengupta
ISBN: 978-0-470-27560-3
Publisher: Wiley (2009)

Title: Handbook of Statistical Analysis and Data Mining,
Authors: Robert Nisbet, John Elder and Gary Miner
ISBN: 978-0-12-374765-5
Publisher: Elsevier Academic Press (2009)

Articles

Apte, C., Liu, B., Pednault, E.P.D., and Smyth, P. 2002. "Business Applications of Data Mining," *Association for Computing Machinery. Communications of the ACM* (45:8), Aug, p 49.

Ariyachandra, Thilini R. and Mark N. Frolick. "Critical Success Factors in Business Performance Management – Striving for Success." *Information Systems Management*, Volume 25 Issue 2, March 2008.

Barjis, J., A. Gupta, et al. "Knowledge work and communication challenges in networked enterprises." *Information Systems Frontiers* Vol. 13, No. 5, pp 615-619, Nov 2011.

Baumeister, J. and M. Freiberg "Knowledge visualization for evaluation tasks." *Knowledge and Information Systems* Vol. 29, No. 2, pp 349-378, Nov 2011.

Brohman, M. Kathryn, Watson, Richard T., Piccoli, Gabriele & Parasuraman, A. (2003), "Data Completeness: A Key to Effective Net-Based Customer Service Systems", *Communications of the ACM*, June, Vol. 46, No. 6, pp. 47-51.

Chen, Lei-da, Frolick, Mark N. & Sakaguchi, Toru (2000). "Data Mining Methods, Applications, and Tools", *Information Systems Management,* 17, 1, Winter, 65-70.

Cooper, L. G. and G. Giuffrida, "Turning Datamining into a Management Science Tool: New Algorithms and Empirical Results," *Management Science,* Vol. 46, No. 2, Feb. 2000, pp. 249 – 264.

Crable, Elaine, James Brodzinski, and Mark N. Frolick. "The Intelligent New Business Electronic Application and Automated Underwriting Solution at The Western-Southern Life Insurance Company." *Information Systems Management*, Volume 25 Issue 2, March 2008.

Datt, S. "The Information Explosion: TRENDS IN TECHNOLOGY 2011 REVIEW." *The Journal of Government Financial Management*, Vol. 60, No. 4, pp 46-51, Winter 2011.

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Frolick, Mark N. Thilini R. Ariyachandra. "Business Performance Management: One Truth,", Information Systems Management, Vol. 23, No. 1, Winter 2006, pp. 41-48.

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Hsieh, J. J. P.-A., A. Rai, et al. "Extracting Business Value from IT: A Sensemaking Perspective of Post-Adoptive Use." *Management Science*, Vol. 57, No. 11, pp 2018-2039, Nov. 2011.

Lindic, J. and C. Marques da Silva "Value proposition as a catalyst for a customer focused innovation." *Management Decision,* Vol. 49, No. 10, pp 1694-1708, 2011.

Katzan, H. and Dowling, W. A., "Software-As-A-Service Economics." The Review of Business Information Systems, Vol.14, No. 1, pp 27-37, First Quarter 2010.

Micheli, P., M. Mura, et al. "Exploring the roles of performance measurement systems in strategy implementation." *International Journal of Operations & Production Management*, Vol. 31, No. 10, pp 1115-1139, 2011.

Morik, K., K. Bhaduri, et al. "Introduction to data mining for sustainability." *Data Mining and Knowledge Discovery,* Vol. 24, No. 2, pp 311-324, March 2012.

Nazem, Sufi M. & Shin, Bongsik (1999). "Data Mining: New Arsenal for Strategic Decision-making", *Journal of Database Management*, 10, Jan-Mar, 39-42.

Neiderman, F., Brancheau, J.C. & Wetherbe, J.C. (1991), "Information systems management issues for the 1990's", MIS Quarterly, Vol. 15, pp. 474-500.

Nemati, Hamid R. and Barko, Christopher D. (2001), "Issues in Organizational Data Mining: A Survey of Current Practices", Journal of Data Warehousing, Winter, Vol. 6, No.
1, pp. 25-36.

Ramakrishnan, T., M. C. Jones, et al. "Factors influencing business intelligence (BI) data collection strategies: An empirical investigation." *Decision Support Systems*, Vol. 52, No. 2, pp 486, Jan. 2012.

Seddon, P. B. and R. Scheepers "Towards the improved treatment of generalization of knowledge claims in IS research: drawing general conclusions from samples." *European Journal of Information Systems*, Vol. 21, No. 1, pp 6-21, Jan 2012.

Sriram, Ram S (2008), "Business Intelligence - in the Context of Global Business Environment"
Journal of Global Information Technology Management, Marietta: 2008. Vol. 11, Iss. 2; pg. 1, 4 pgs

Verbeke, W., K. Dejaeger, et al. "New insights into churn prediction in the telecommunication sector: A profit driven data mining approach." *European Journal of Operational Research*, Vol. 218, No. 1, pp 211, 2012.

Wang, W. Y. C., A. Rashid, et al. "TOWARD THE TREND OF CLOUD COMPUTING." *Journal of Electronic Commerce Research*, Vol. 12, No. 4), pp 238-242, 2011.

Watson, Hugh J, Dave Donkin (2005), "Outstanding BI and Data Warehousing Practice Exists Around the World: The Absa Bank in South Africa", *Journal of Global Information Technology Managemen*, Marietta: 2005. Vol. 8, Iss. 4; pg. 1, 6 pgs