

**University of Massachusetts Dartmouth
Charlton College of Business**

**Business Intelligence and Knowledge Management
MIS 681**

(Syllabus is subject to change)

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| Instructor: | Shouhong Wang http://www.faculty.umassd.edu/shouhong.wang/ |
| Email: | swang@umassd.edu |

Class Schedule, Office Hours and Location

TBD

1. Course Description

Course Description:

Business intelligence (BI) and knowledge management (KM) issues facing managers today and information technology needed to solve managerial problems using BI and KM. Concepts of BI and KM, processes of BI and KM, and the Integration of BI and KM are discussed.

Detailed Description:

In the global competitive environment organizations must fully use information resources for competition. BI is an integrated approach to the extraction of insights from massive data for organizational business strategies formulation and implementation. BI enables organizations to achieve objectives by providing decision makers with critical insights for customer needs, supplier spending, employee retention, financial performance, and other managerial aspects. Its components include business analytics and data visualization, business performance management, data warehousing, data mining, and web and text mining. BI involves organizational processes, starting with data model infrastructure, then data preparation, followed by data analysis, integration, transformation of data to information, and finally the actual use of BI information. In this course, students will learn BI concepts and methods and processes to improve business decisions. Students will also learn about the BI values, and how BI is positioned and used within all levels of the organization.

KM is a process through which organizations generate value from their intellectual and knowledge-based assets. It includes identifying crucial knowledge, aligning business strategy, transitioning from managing data to managing knowledge, implementing knowledge sharing in organizational learning communities. In this course, students will learn KM process and strategies, organizational changes for KM, IT for KM, and practical techniques for planning, designing, developing, and managing enterprise KM systems.

As an MBA MIS elective course, this course emphasizes

- (1) concept of BI and KM;
- (2) IT for BI and KM; and
- (3) integration of BI and KM for business (e.g., Supply Chain Management).

Prerequisite:

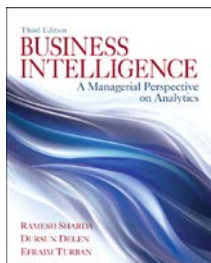
MIS 650 Information Technology Management, or permission.

Course Credits: 3 credits.

Required Text:

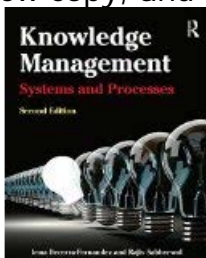
(1) Textbook for BI:

R. Sharda, D. Delen, and E. Turban, *Business Intelligence: A Managerial Perspective on Analytics*, 3ed. Prentice Hall, 2014 ISBN-10: 0133051056 • ISBN-13: 9780133051056. (about \$89 for a new copy, and about \$20-\$40 for rent at amazon.com)



(2) Textbook for KM:

Becerra-Fernandez, I. & Sabherwal, R., *Knowledge Management: Systems and Processes*, 2nd Ed. Routledge, NY, 2015. ISBN 978-0-7656-3915-8. (about \$70 for a new copy, and about \$50 for a used copy or ebook at amazon.com)

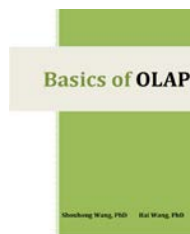


(3) Supplemental Material (Free on myCourses)

Online Course Material (Note: Copyrighted documents are used for the class only.)

Basics of OLAP (Teaching Note of Technical Assignment, Free online)

Few BI textbooks on the market provide good hands-on assignments for general MBA students. To teach MBAs to practice BI and to gain deeper understanding of BI, this course presents a teaching note of OLAP along with **two** files (OLAP.accdb and OLAP.xlsx) for a simple example of OLAP for the BI technical assignment. Through the reading of the teaching note, practicing the OLAP, and completing the technical assignment, students will gain significant skills in BI (i.e., understanding of the real functions behind those Dashboards in many ERP systems).



The software used for the Technical Assignment is Microsoft Excel and Microsoft Access. If you do not have Microsoft Access on your computer, you may use the Virtual Computing Lab through the university web portal. Please read Instructions of Virtual Computing Lab posted on the course site for the instructions.

2. Course Objectives

Course Objectives:

Students in this course will develop an understanding of business intelligence for organizations to fundamentally rethink organizational learning strategy and information utilization, and will develop an understanding of knowledge management for organizations to fundamentally rethink organizational learning strategy, structure, and process. Upon the completion of this course, students will

1. understand how business intelligence helps organizations prosper in facing the challenges of the competitive business environment;
2. be able to collect and analyze data to improve strategic and tactical decisions;

3. understand the importance and roles of knowledge management in organizations;
4. be able to apply knowledge management techniques; and
5. be able to analyze and design knowledge management for an organization.

3. Competencies and Contact Hours

Students will be introduced to:

- BI concepts (3 hr)
- BI strategies (3 hr)
- KM process (3 hr)
- KM strategies (3 hr)
- KM outcome assessment (3 hr)

Students will understand:

- Impacts of BI on organizations (2 hr)
- BI techniques (3 hr)
- IT for BI (3 hr)
- Impacts of KM on organizations (2 hr)
- IT for KM (3 hr)

Students will be able to:

- Design, practice, and assessment of BI solutions (5 hr)
- Analyze KM issues in real situations (5 hr)
- Effectively communicate KM recommendations (3 hr)
- Integration of BI and KM for the organization (4 hr)

4. Methods of Instruction

We will apply the flip teaching approach to this course. You read the textbook and other supplemental materials (including lecture PPT) by yourself first. Upon the completion of reading and comprehension of the course material, you complete quiz tests, assignments, face-to-face discussions, and presentations.

(1) Each student will practice technical assignment of OLAP process **independently**, following the teaching note, and present the assignment result.

(2) Students will present reading presentations and discussions.

(3) Each student will present and submit a course report based on her/his interests.

Students have the responsibility to access the online course site in the UMass **myCourses** system through high speed Internet connection with their own adequate computers. All technical problems with **myCourses** should be reported to the university CITS support team.

Evaluation and Grading Breakdown:

- Class participation (5 points)
- Quiz tests (30 points)
- OLAP Assignment (25 points)
- Course report (40 points)

(1) Individual OLAP competition (25 points):

Each student is required to complete a technical assignment of OLAP independently. Integrative thinking and creative approach to the assignment are required. Individual presentations of the technical assignment will be a competition. The requirements for the technical assignment are outlined in the next section.

Please note that this course assumes that you knew nothing about database and Microsoft Access before taking this course. Learning basics (not much) of database and Access for basics of OLAP is a part of this MIS course. You need Microsoft Access and Excel for this assignment. If your computer does not have them, please use Virtual Computing Lab on the university web site.

(2) Course report (40 points):

Individual student is also expected to write **a course report** on BI and KM in order to clearly understand the concepts of BI and KM, and apply them to the day-to-day life. The topic of course report is proposed by individual student (see the Schedule) and approved by the instructor. Topics of course reports could be classified into two categories.

(a) **Preferred:** BI and KM project report. This category of project is preferred for the MBA course. A BI and KM project report must be based on a real organization where the student obtains first-hand experiences. A report is to identify problems/opportunities of the organization in BI and KM practice, and provide recommendations to the organization to improve the BI and KM.

(b) Research on an important issue of BI and KM. If a student does not have much real-world working experiences for a BI+KM project, she/he may choose this category. Potential topics in this category can be found in **Application Exercises** after individual chapters of the KM textbook and/or journals in the BI and KM fields (through the library ABI/ProQuest online databases such as ABI/ProQuest Global).



Note that the selected topic must be close to managerial issues and practices of BI and KM.

The requirements for course report are outlined in the next section. **Excellent course reports will receive additional points.**

Requirement Details:

(1) OLAP Assignment and Presentation

The final report of the assignment should include important illustrative screenshots of your OLAP process should be included in your final report. The report and presentation should include:

- Your assumptions of the business strategy and your BI strategy for this case
- Discuss why database (not just "flat" data spreadsheets) is needed for OLAP in business. Provide an overview of the entire data set you used for this assignment
- Data preparation for your OLAP process
- Your OLAP process
- Your significant 5 findings from the data and the support evidence (screenshots and explanations)
- Lessons you learned from this assignment (i.e., the real functions behind those Dashboards in ERP systems)
- General discussion of BI learned from the textbook and reading assignments.
- Attachments: OLAP artifacts, i.e., an Excel file with multiple sheets (and Access database if applicable) that show your OLAP analyses.

The competition (presentation) should be your professional best. You should use computer-projected PPT.

(2) Course Report on BI and KM

The topic of course report on BI and KM is chosen by the student and approved by the instructor. A typical course report is 20 double-spaced pages, excluding references and appendices. The structures of course reports are highly depending on the topics. Nevertheless, the following general structures might be applied.

For BI and KM project report:

- Introduction - company's background
- Descriptions of the information system of the organization, and current BI and KM
 - Identify and assess the contingency factors of the organization.
 - Assess BI+KM requirements in organization unit/subunit.
 - Evaluate extent and quality of available data and knowledge.
- Problems/opportunities for BI and KM
- Analysis (using the methods, theories, and models you learned from this course)
- Recommendations
- Implementation plan and conclusion
- Appendices - interview/survey, diagrams, samples
- At least 10 references (the BI and KM literature and/or the Internet sources) that are relevant to the project

For BI and KM research paper:

- Introduction – overview of the issue which is interesting to CIO and CKO to solve managerial problems.
- Analysis and discussion of the issue
- Your suggestion/solution/recommendation
- Conclusion
- At least 20 references (the BI and KM literature and/or the Internet sources) that are cited in the text

Rubrics for course reports and reference format are listed in *Appendix A* and *Appendix B*, respectively. The presentation should be your professional best.

5. Schedule

(Schedule is subject to change in accordance with the progress.)

| Unit/Day | Topics | Your Tasks |
|----------|-----------------|--|
| Unit-1 | Course overview | 1. Acquire the two textbooks. 2. Become familiar with the course site on myCourses. 3. Browse materials posted on the course site. |

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| Unit-2 | Basics of OLAP | 1. Read the BI textbook. 2. Take BI quiz tests. 3. Work on OLAP technical assignment. |
| Unit-3 | OLAP assignment | 1. Complete the reading of the BI textbook. 2. Complete BI quiz tests. 3. Complete the OLAP technical assignment. 4. Prepare for OLAP presentation. |
| Unit-4 | OLAP presentation Post your PPT Submit your OLAP report | 1. Read the KM textbook. 2. Do the KM quiz tests. 3. Generate course report proposal. |
| Unit-5 | Submit Course report proposal | 1. Read the KM textbook. 2. Do the KM quiz tests. 3. Complete course report proposal and submit it. |
| Unit-6 | Course report preparation (You are encouraged to communicate with the instructor for one-to-one help) | 1. Read the KM textbook. 2. Do the KM quiz tests. 3. Course report preparation. |
| Unit-7 | Course report presentations (Post your PPT) to share knowledge with others | Course report preparation on 07/10 |
| Unit-8 | Submit your course report | Course report due on 07/13 |

As the semester progresses, this syllabus will be adjusted to accommodate any unforeseen circumstances, at the discretion of the instructor when needed.

6. Communication Plan

Here are my expectations for electronic communication:

- Please use email ONLY when the subject is of a personal and confidential matter. If the question you ask is of a nature that even one other person in the course

could benefit from the answer, post the question in the appropriate discussion board forum.

- I check my email daily Monday through Friday during normal business hours only. You can expect a reply from me via email within 24 hours during the work week. You may get an email reply during the weekend, but that would be an exception not the rule.
- I will also check the discussion forums daily during the work week. I will be participating in what I hope will be lively discussions and will always reply to any discussion comment directed specifically at me.
- It is your responsibility to meet the due times of assignments. If you do not hear from me after submitting work, consider it a good thing.

Time Considerations

Students should be prepared to spend a minimum of 3 hours a week on reading and on course assignments. While you may feel that I'm displaying a lot of information to you on a weekly basis remember that in a traditional "live" course you would be coming to class for 3 hours and then spending an additional 3-6 hours (at least) outside of class on assignments and reading.

In our online course environment my expectation is that you will be spending those 3 "class hours" on your own, working on the concepts that you would usually get in a live lecture.

Please be sure to budget your time accordingly!

Substantive Participation Should:

- Add value to the discussion and avoid simply repeating, agreeing with, or answering yes or no to peer's comments.
- Challenge comments in class, including those of the facilitator.
- Ask insightful questions.
- Answer other people's questions.
- Exemplify the point with real-life events, when possible.
- Make comments that are relevant to the course content and objectives.

Ideas for Substantive Participation Include:

- Share an experience that is related to the discussion. Comment on other participants' experiences that are related to the course.
- Ask others questions about their ideas and experiences that are related to the course.

- Challenge a point that another participant made in a respectful manner. Offer a different perspective on an idea that is being discussed.
- Give insights gained from readings that were assigned for the week. If you need more information, ask the participants a question about the week's reading.
- Discuss a work issue that is related to the course or discussion and ask for feedback.
- Relate how you have applied what you have read, learned or discussed regarding the course to your personal and professional life.
- Share another resource such as Web links, books, etc. that you have used to answer other participants' questions or as you explore the topics of the course, (as it is a violation of copyright law to copy the actual page).

7. Incomplete Policy

According to the university catalogue, an incomplete may be given only in exceptional circumstances at the instructor's discretion. The student must be passing at the time of the request or be sufficiently close to passing. If the work is not completed within one year of the recording of the incomplete grade, the grade will become an F(I). The incomplete policy for this course is that at least 70% of the course must be already completed and an exceptional circumstance (i.e. medical issue) must exist. If you feel you require an incomplete for an exceptional reason, you need to email me and state your reasons for the incomplete in writing. We will then decide on a course of action.

<http://www.umassd.edu/nfi/teachingandadvising/coursesyllabus/sampleincompletetestament/>

8. Student Academic Integrity Policy

All UMass Dartmouth students are expected to maintain high standards of academic integrity and scholarly practice. The University does not tolerate academic dishonesty of any variety, whether as a result of a failure to understand required academic and scholarly procedure or as an act of intentional dishonesty.

A student found responsible of academic dishonesty is subject to severe disciplinary action which may include dismissal from the University. The procedure for responding to incidents of academic dishonesty may be found in Section III of this document. You may also refer to the Student Handbook for information about the judicial process.

A high standard of academic integrity promotes the pursuit of truth and learning and respect for the intellectual accomplishments of others. These are values that are fundamental to the mission of this University. Such values are undermined by academic dishonesty.

Academic freedom is a fundamental right in any institution of higher learning. Honesty and integrity are necessary preconditions of this freedom. Academic integrity requires that all academic work be wholly the product of an identified individual or individuals. Joint efforts are legitimate only when the assistance of others is explicitly acknowledged and deemed appropriate by the instructor of the course. Ethical conduct is the obligation of every member of the University community, and breaches of academic integrity constitute serious offenses.

Maintenance of the standards of academic integrity and the successful administration of this policy depend on the mutual cooperation of faculty and students.

Faculty cooperation is essential for successful application of the procedures defined by this Academic Integrity Policy. Faculty members promote academic integrity by making clear on their syllabi their expectations concerning homework assignments, collaborative student efforts, research papers, examinations, computer-based infractions, and the like. Efforts should be made to detect and to prevent cheating and plagiarism in all academic assignments. If faculty members have evidence of academic dishonesty, they are expected to report such evidence promptly.

Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Students are also expected to report incidents of academic dishonesty to the instructor or dean of the instructional unit.

The intent of this policy is to make clear the standards of academic integrity at UMass Dartmouth.

****For additional information on violations, infractions, and consequences visit the UMass Dartmouth Student Academic Integrity Policy at the link below.***

<http://www.umassd.edu/studentaffairs/studenthandbookintroduction/studentconductpolicies/academicintegritypolicy/>

Appendix A. Rubrics

Rubrics for OLAP Technical Assignment

| | 4. Exemplary | 3. Good | 2. Fair | 1. Poor |
|---|---|--|--|--|
| OLAP Strategy and Findings (20%) | <ul style="list-style-type: none"> ◦ The strategy has very strong managerial sense ◦ Very useful | <ul style="list-style-type: none"> ◦ The strategy has strong managerial sense ◦ Useful for | <ul style="list-style-type: none"> ◦ Weak managerial sense ◦ Weak for management | <ul style="list-style-type: none"> ◦ Lack of managerial sense ◦ Little value for |

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| | for management practices. | management practices. | practices. | management practices. |
| OLAP Techniques (50%) | <ul style="list-style-type: none"> ◦ Fully understanding of OLAP ◦ Excellent applications of all four OLAP techniques ◦ Extensive use of diversified data resources | <ul style="list-style-type: none"> ◦ Good understanding of OLAP ◦ The applications covers all four OLAP techniques ◦ Good use of the data resources | <ul style="list-style-type: none"> ◦ Weak understanding of OLAP ◦ Some OLAP techniques are missing ◦ The data resources used for OLAP are narrow | <ul style="list-style-type: none"> ◦ Mis-understanding of OLAP ◦ Only simple OLAP techniques are used ◦ Only a few tables are used for OLAP |
| Organizational Structure (15%) | <ul style="list-style-type: none"> ◦ Important details and topics are well organized. ◦ Clearly developed and linked introduction and conclusion. ◦ Very good transitions. | <ul style="list-style-type: none"> ◦ Generally well organized, fairly concise. ◦ Fairly clear introduction and conclusion. ◦ Section headings are unclear. | <ul style="list-style-type: none"> ◦ Inadequate section formation. ◦ Unclear introduction and conclusion. ◦ Unclear transitions. | <ul style="list-style-type: none"> ◦ Rambling introduction and conclusion. ◦ No flow or transitions between paragraphs. ◦ Did not use section headings. |
| Writing and Presentation (15%) | <ul style="list-style-type: none"> ◦ Excellent screenshots and explanations of OLAP ◦ Appropriate use of vocabulary. ◦ Professional page/slides layout. | <ul style="list-style-type: none"> ◦ Good screenshots and explanation of OLAP ◦ Moderate use of vocabulary or limited misuse of vocabulary. ◦ Minor problems with page/slides | <ul style="list-style-type: none"> ◦ Noticeable missing details. ◦ Limited use or moderate misuse of vocabulary. ◦ Significant problems with page/slides layout. | <ul style="list-style-type: none"> ◦ Many errors and missing items. ◦ Poor vocabulary or annoying misuse of vocabulary. ◦ Annoying page/slides layout. |

| | | | | |
|--|--|---------|--|--|
| | | layout. | | |
|--|--|---------|--|--|

Rubrics for Course Report and Presentation

| | 4. Exemplary | 3. Good | 2. Fair | 1. Poor |
|---------------------------------------|---|--|---|---|
| Managerial Significance (30%) | <ul style="list-style-type: none"> ◦ The topic has very strong managerial impact. ◦ Very useful for management practices. | <ul style="list-style-type: none"> ◦ The topic has strong managerial impact. ◦ Useful for management practices. | <ul style="list-style-type: none"> ◦ Weak managerial impact. ◦ Weak for management practices. | <ul style="list-style-type: none"> ◦ Lack of managerial significance. ◦ Little value for management practices. |
| Organizational Structure (15%) | <ul style="list-style-type: none"> ◦ Important details and topics are well organized. ◦ Clearly developed and linked introduction and conclusion. ◦ Very good transitions. | <ul style="list-style-type: none"> ◦ Generally well organized, fairly concise. ◦ Fairly clear introduction and conclusion. ◦ Section headings are unclear. | <ul style="list-style-type: none"> ◦ Inadequate section formation. ◦ Unclear introduction and conclusion. ◦ Unclear transitions. | <ul style="list-style-type: none"> ◦ Rambling introduction and conclusion. ◦ No flow or transitions between paragraphs. ◦ Did not use section headings. |
| Writing and Presentation (15%) | <ul style="list-style-type: none"> ◦ Few errors in grammar ◦ Appropriate use of vocabulary. ◦ Cited resources correctly and excellent use of reference materials. ◦ Professional | <ul style="list-style-type: none"> ◦ A few errors in grammar. ◦ Moderate use of vocabulary or limited misuse of vocabulary. ◦ Citation of sources is inaccurate. ◦ Minor problems with | <ul style="list-style-type: none"> ◦ Noticeable errors in grammar. ◦ Limited use or moderate misuse of vocabulary. ◦ Limited citation of sources. ◦ Significant problems with | <ul style="list-style-type: none"> ◦ Many errors in grammar. ◦ Poor vocabulary or annoying misuse of vocabulary. ◦ No citation of sources. ◦ Annoying |

| | page/slides layout. | page/slides layout. | page/slides layout. | page/slides layout. |
|--|--|---|---|--|
| Analytical skill and Integrative Thinking (40%) | <ul style="list-style-type: none"> ◦ Excellent understanding of the context and concepts. ◦ Strong arguments. ◦ Demonstrates integrative thinking. | <ul style="list-style-type: none"> ◦ Very good understanding of the context and concepts. ◦ Good arguments. ◦ Good thinking. | <ul style="list-style-type: none"> ◦ Inaccurate understanding of the context and concepts. ◦ Weak arguments. ◦ Limited thinking. | <ul style="list-style-type: none"> ◦ Substantial lack of understanding of the context and concepts. ◦ Confusing arguments. ◦ Lack of thinking |

Appendix B. Format of Citations and References

1. For books:

Citation in text:

Effective knowledge management must be supported by modern information technology (Leistner, 2010, p.21).

Reference:

Leistner, F. *Mastering Organizational Knowledge Flow: How to Make Knowledge Sharing Work*, Wiley, 2010.

2. For journals and magazines:

Citation in text:

Data mining can be beneficial for the knowledge management by sharing common understanding of the context of business intelligence among the data miners (Wang and Wang, 2008).

Reference:

Wang, H. and Wang, S., A knowledge management approach to data mining process for business intelligence, *Industrial Management & Data Systems*, 108(5), 2008, 622-634.

3. For Web sites:

Citation in text:

Since the Internet became the e-commerce media, online auctions are virtually adopted for all kinds of commodities ranging from low-price books to expensive real estate (eBay, 2014).

Reference:

eBay (2015). eBay Home Page, <<http://www.ebay.com>>, [accessed March 1, 2015].