2014-2015 LONG SIGNATURE SHEET

UNC CHARLOTTE

Proposal Number: SIS-12-15-14

Proposal Title: HCIP 6396: Business Intelligence in Healthcare

Originating Department: Software and Information Systems (ITIS)

TYPE OF PROPOSAL: UNDERGRADUATE_____ GRADUATE___X___ UNDERGRADUATE & GRADUATE____
(Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE CONSIDERED	DATE FORWARDED	ACTION	SIGNATURES
December 10, 2014	December 17, 2014	December 17, 2014	*Approved*	**DEPARTMENT CHAIR** Mary Lou Maher [Mary Lou Maher]
December 17, 2014	December 29. 2014	December 29, 2014	*Approved*	**COLLEGE CURRICULUM COMMITTEE CHAIR** [Yuliang Zheng]
December 29, 2014	2/16/2015	2/16/2015		**COLLEGE FACULTY CHAIR (if applicable)** A. Srinivas [Srinivas Akella]
2/19/2015	2/19/2015	2/19/2015	approved	**COLLEGE DEAN** [Yi Deng]
				GENERAL EDUCATION (if applicable; for General Education courses) [N/A]
				UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR (for undergraduate courses only)
2-13-15	3-10-15	7-9-15	Approved	**GRADUATE COUNCIL CHAIR** (for graduate courses only) Alan R. Frentag ALAN R. FRENTAG
				FACULTY GOVERNANCE ASSISTANT (Faculty Council approval on Consent Calendar)
				FACULTY EXECUTIVE COMMITTEE (if decision is appealed)

UNC CHARLOTTE

LONG FORM
COURSE AND CURRICULUM PROPOSAL

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*To: Graduate Council Chair

From: Software and Information Systems Department

Date: December 15, 2014

Re: HCIP 6396: Business Intelligence in Healthcare

The Long Form is used for major curriculum changes. Examples of major changes can include: creation of a new major, creation of a new minor, creation of a new area of concentration, or significant changes (more than 50%) to an existing program (Note: changing the name of an academic department does not automatically change the name(s) of the degree(s). The requests must be approved separately by the Board of Governors.)

Submission of this Long Form indicates review and assessment of the proposed curriculum changes at the department and collegiate level either separately or as part of ongoing assessment efforts.

*****Proposals for undergraduate courses should be sent to the Undergraduate Course and Curriculum Committee Chair. Proposals related to both undergraduate and graduate courses, (e.g., courses co-listed at both levels) must be sent to both the Undergraduate Course and Curriculum Committee and the Graduate Council.

University of North Carolina at Charlotte **HCI-12-15-14**

New Graduate Course and Curriculum Proposal from: Department of Software and Information Systems

Title: Business Intelligence in Healthcare

A. PROPOSAL SUMMARY.

1. SUMMARY

The Department of Software and Information Systems proposes to add a new course, HCIP 6396: Business Intelligence in Healthcare, designed to provide graduate students with a comprehensive look at the business intelligence tools in healthcare for understanding information and data across the healthcare enterprise. This course is intended for Health Informatics Professional Science Master and PhD programs.

B. JUSTIFICATION

1. Identify the need addressed by the proposal and explain how the proposed action meets the need.

Business Intelligence is a collection of computer based techniques used to extract, identify and analyze data. Analytics is key in the transformation that the healthcare industry is undergoing. Healthcare organizations are going through a technology and data revolution. Pressure from a wide range of sources are forcing both providers and health plans to look at their data and technology investments in new and innovative ways to gain competitive advantage. Healthcare business intelligence can provide organizations the ability to use their data to improve quality of care, increase financial efficiency and operational effectiveness, conduct innovative research and satisfy regulatory requirements. Business Intelligence helps leverage key information at business users finger tips. It provides current and predictive views across the enterprise. Common functions of BI are reporting, data mining, analytical processing, knowledge management, and data visualization. The goal is to provide better business decision-making skills. ~~Decision Support System.~~

Subjects covered in this course include elements of business intelligence, business analytics, data visualization, data mining, data warehousing and business performance management

2. Discuss prerequisites/corequisites for course(s) including class-standing.

The prerequisites for this course are - Introduction to Health Informatics (HCIP 6380), Decision Analysis in Healthcare (HCIP 6108), and Health Care Data Analysis (HCIP 6102).

3. Demonstrate that course numbering is consistent with the level of academic advancement of students for whom it is intended.

   The course is intended for graduate students interested in the analysis of healthcare systems and processes. It is taken after its prerequisites, Introduction to Health Informatics, Decision Analysis in Healthcare, and Health Care Data Analysis.~~, and Business Intelligence in Healthcare.~~ ~~These courses can be taken in any sequence.~~ The PhD students will have a separate definition of the project, requiring them to do a more comprehensive analysis of the selected network.

4. In general, how will this proposal improve the scope, quality and/or efficiency of programs and/or instruction?

   This course will add to the analytics component of the Health Informatics PSM program. It will be the third course in a 3-course sequence: Decision Analysis in Healthcare, Health Care Data Analysis, and Business Intelligence in Healthcare. It is actually a course that was suggested by students who completed their internship.

C. IMPACT. Changes to courses and curricula often have impacts both within the proposing department as well as campus-wide. What effect will this proposal have on existing courses and curricula, students, and other departments/units? Submit an Impact Statement that fully addresses how you have assessed potential impacts and what the impacts of this proposal might be. Consider the following:

1. What group(s) of students will be served by this proposal? (Undergraduate and/or graduate; majors and/or non-majors, others? Explain). Describe how you determine which students will be served.

   The course is designed to serve the needs of the Health Informatics graduate MS students. In addition, PhD students in related disciplines (e.g., Health Services Research) could find this course a useful elective.

2. What effect will this proposal have on existing courses and curricula?
   a. When and how often will added course(s) be taught?

   HCIP 6396 will be taught in the Spring semester.

   b. How will the content and/or frequency of offering of other courses be affected?

   There should be no impact on the content or frequency of offering of other courses.

   c. What is the anticipated enrollment in course(s) added (for credit and auditors)?

The anticipated enrollment is approximately 10-15 students per class.

d. How will enrollment in other courses be affected? How did you determine this?

This course may increase the demand for the Decision Analysis in Healthcare, Health Care Data Analysis courses, and vice versa.

e. Identify other areas of catalog copy that would be affected, including within other departments and colleges (e.g., curriculum outlines, requirements for the degree, prerequisites, articulation agreements, etc.)

There are no other anticipated changes in the catalog.

III. RESOURCES REQUIRED TO SUPPORT PROPOSAL.

When added resources are not required, indicate "none". For items which require "none" explain how this determination was made.

A. PERSONNEL. Specify requirements for new faculty, part-time teaching, student assistants and/or increased load on present faculty. List by name qualified faculty members interested in teaching the course(s).

No new or part-time faculty is required in order to offer these courses; nor will these courses introduce an increased teaching load on present faculty. Dipti Patel-Misra, an adjunct faculty, and Lixia Yao will teach this course. Mirsad Hadzikadic can teach this course as well.

B. PHYSICAL FACILITY. Is adequate space available for this course?

The College of Computing and Informatics (CCI) has adequate space and basic hardware and software infrastructure needed to cover this course.

C. EQUIPMENT AND SUPPLIES: Has funding been allocated for any special equipment or supplies needed?

No additional equipment or supplies are needed for the proposed course.

D. COMPUTER. Specify any computer usage (beyond Moodle) required by students and/or faculty, and include an assessment of the adequacy of software/computing resources by available for the course(s).

Any computer laboratory on campus and personal computers of students will suffice as a computational platform for this course.

E. AUDIO-VISUAL. If there are requirements for audio-visual facilities beyond the standard classroom podiums, please list those here.

Current facilities are adequate to support this course.

F. OTHER RESOURCES. Specify and estimate cost of other new/added resources required, e.g., travel, communication, printing and binding.

None needed.

G. SOURCE OF FUNDING. Indicate source(s) of funding for new/additional resources required to support this proposal.

None needed.

IV. CONSULTATION WITH THE LIBRARY AND OTHER DEPARTMENTS OR UNITS

A. LIBRARY CONSULTATION. Indicate written consultation with the Library Reference Staff at the departmental level to ensure that library holdings are adequate to support the proposal prior to its leaving the department. (Attach copy of ***Consultation on Library Holdings***).

Consultation was completed on 12/12/2014 (see Attachment 2).

B. CONSULTATION WITH OTHER DEPARTMENTS OR UNITS. List departments/units consulted in writing regarding all elements outlined in IIC: Impact Statement, including dates consulted. Summarize results of consultation and attach correspondence. Provide information on voting and dissenting opinions (if applicable).

Consultations with the Departments of Computer Science and Bioinformatics and Genomics were completed by 12/17/2014 and 12/11/2014. (See Attachment 2)

V. INITIATION, ATTACHMENTS AND CONSIDERATION OF THE PROPOSAL

A. ORIGINATING UNIT. Briefly summarize action on the proposal in the originating unit including information on voting and dissenting opinions.

Approved by the Department of Software and Information Systems on _____, with ___ out of ___ votes and no dissenting opinions.

B. CREDIT HOUR. **(Mandatory if new and/or revised course in proposal)**
Review statement and check box once completed:

☒ The appropriate faculty committee has reviewed the course outline/syllabus and has determined that the assignments are sufficient to meet the University definition of a credit hour.

C. ATTACHMENTS.

1. CONSULTATION: Attach relevant documentation of consultations with other units.

- *Consultation on Library Holdings attached in Appendix 2*

2. COURSE OUTLINE/SYLLABUS: For undergraduate courses attach course outline(s) including basic topics to be covered and suggested textbooks and reference materials with dates of publication. For Graduate Courses attach a course syllabus. Please see Boiler Plate for Syllabi for New/Revised Graduate Courses.

- *course syllabus attached in Appendix 1*

3. PROPOSED CATALOG COPY: Copy should be provided for all courses in the proposal. Include current subject prefixes and course numbers, full titles, credit hours, prerequisites and/or corequisites, concise descriptions, and an indication of when the courses are to be offered as to semesters and day/evening/weekend. Copy and paste the current catalog copy and use the Microsoft Word "track changes" feature (or use red text with "~~strikethrough~~" formatting for text to be deleted, and adding blue text with "underline" formatting for text to be added).

a. For a new course or revisions to an existing course, check all the statements that apply:

____ This course will be cross listed with another course.
_X__There are prerequisites for this course.
____ There are corequisites for this course.
____ This course is repeatable for credit.
____ This course will increase/decrease the number of credits hours currently offered by its program.
____This proposal results in the deletion of an existing course(s) from the degree program and/or catalog.

For all items checked above, applicable statements and content must be reflected in the proposed catalog copy.

- *Proposed catalog copy attached in Appendix 3*

b. If overall proposal is for a new degree program that requires approval from General Administration, please contact the facultygovernance@uncc.edu for consultation on catalog copy.

4. ACADEMIC PLAN OF STUDY **(UNDERGRADUATE ONLY)**: Does the proposed change impact an existing Academic Plan of Study?

☐ Yes. If yes, please provide updated Academic Plan of Study in template format.
☒ No.

5. STUDENT LEARNING OUTCOMES (UNDERGRADUATE & GRADUATE): Does this course or curricular change require a change in Student Learning Outcomes (SLOs) or assessment for the degree program?
☐ Yes. If yes, please provide updated SLOs in template format.
☒ No.

6. TEXTBOOK COSTS: It is the policy of the Board of Governors to reduce textbook costs for students whenever possible. Have electronic textbooks, textbook rentals, or the buyback program been considered and adopted?
☒ Yes. Briefly explain below.

There is no electronic version of the textbooks available yet. Textbook rentals or the buyback program should be available through the bookstore.
☐ No. Briefly explain below.

IMPORTANT NOTE: A Microsoft Word version of the final course and curriculum proposal should be sent to facultygovernance@uncc.edu upon approval by the Undergraduate Course and Curriculum Committee and/or Graduate Council chair.

Attachment 1

HCIP 6396 Course Objectives, Outline, Textbooks, and Evaluations

Course Objectives

This course will offer an overview of methods and solutions for understanding business intelligence and needs in healthcare. The course will identify different options for delivering business intelligence across healthcare enterprise. It will also draw parallels, similarities, and differences between the existing tools and solutions. After taking this course, students will be able to explain delivery of information and business intelligence to different roles across organization. They will also be able to use one of the existing commercial tools to address problems often found in real life.

Course Outline

1. Introduction to Business Intelligence in Healthcare
2. Information Systems in Healthcare
3. Aligning Healthcare Business and IT Strategy
4. Decision Support
5. Healthcare Analytics and Decision Making
6. Reporting/Dashboards
7. Project Management
8. Healthcare Business Performance Management
9. Data Warehouse
10. Data Mining
11. Data Visualization
12. Big Data
13. Text and Web Mining
14. Emerging Trends

Suggested Textbooks

There are no appropriate textbooks in this field. The instructors will use on-line material, case studies, appropriate chapters from selected books, and reference materials from publications as needed.

Deliverables (reports)

- Weekly report on the outcome of negotiations
- Final report
    - The process and outcomes of negotiations
        - Desired outcome vs. the actual outcome
    - Analysis methods used (the actual project)
    - Data behind the thought process

Course Requirements and Grading Policy

The class will be taught as a sequence of lectures, with students being expected to read provided materials before each class. The classes will mainly be constructed as a discussion of the material that students already read.

Allocation of points:

- Midterm 15%
- Final 25%
- Weekly reports 10%
- Project presentation 20%
- Final report 30%

Grading:

90-100 points	A
80-89	B
70-79	C
69 and below	U

Attachment 2: Library and Departmental Consultations

UNC CHARLOTTE

J. Murrey Atkins Library

Consultation on Library Holdings

To: Dr. Mirsad Hadzikadic

From: Dr. Melanie Sorrell

Date: 12/12/2014

Subject: HCIP 6396 Business Intelligence in Healthcare

Summary of Librarian's Evaluation of Holdings:

Evaluator: Dr. Melanie Sorrell Date: 12/12/2014

Check One:

1. Holdings are superior _____
2. Holdings are adequate __x__
3. Holdings are adequate only if Dept. purchases additional items. _____
4. Holdings are inadequate _____

Comments:
This is a proposal for a new graduate level course, which includes weekly report assignments. Library holdings should be adequate to support student research for this course (see list of items held by subject heading below). Students will have access to relevant databases including INSPEC, Web of Science, Compendex, ACM Digital Library, IEEE Xplore Digital Library, PubMed, and the Wiley Online Library.

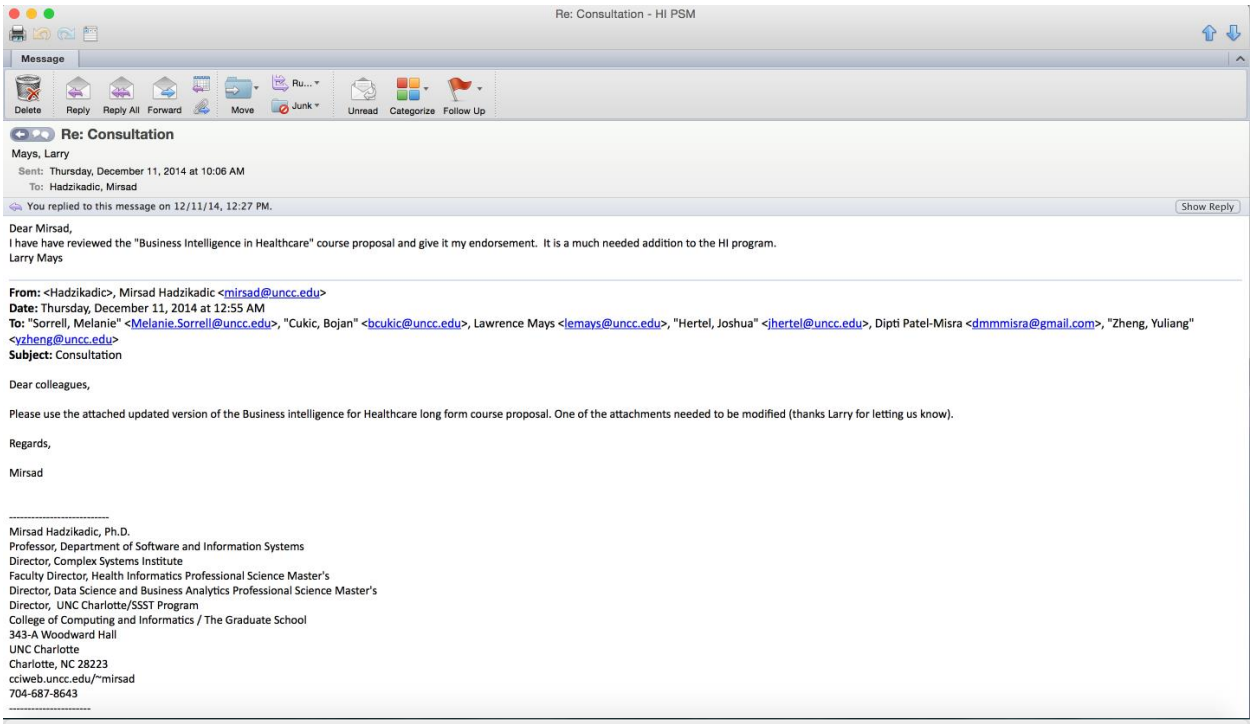
LC Subject Heading	Total items held
Data mining	981 monographs
Big data	44 monographs
Medical informatics	345 monographs
Information storage and retrieval systems – medical care	49 monographs
Medical care – information technology - management	117 monographs
Applied Clinical Informatics	Journal title
Health Management Technology	Journal title
Journal of Medical Systems	Journal title

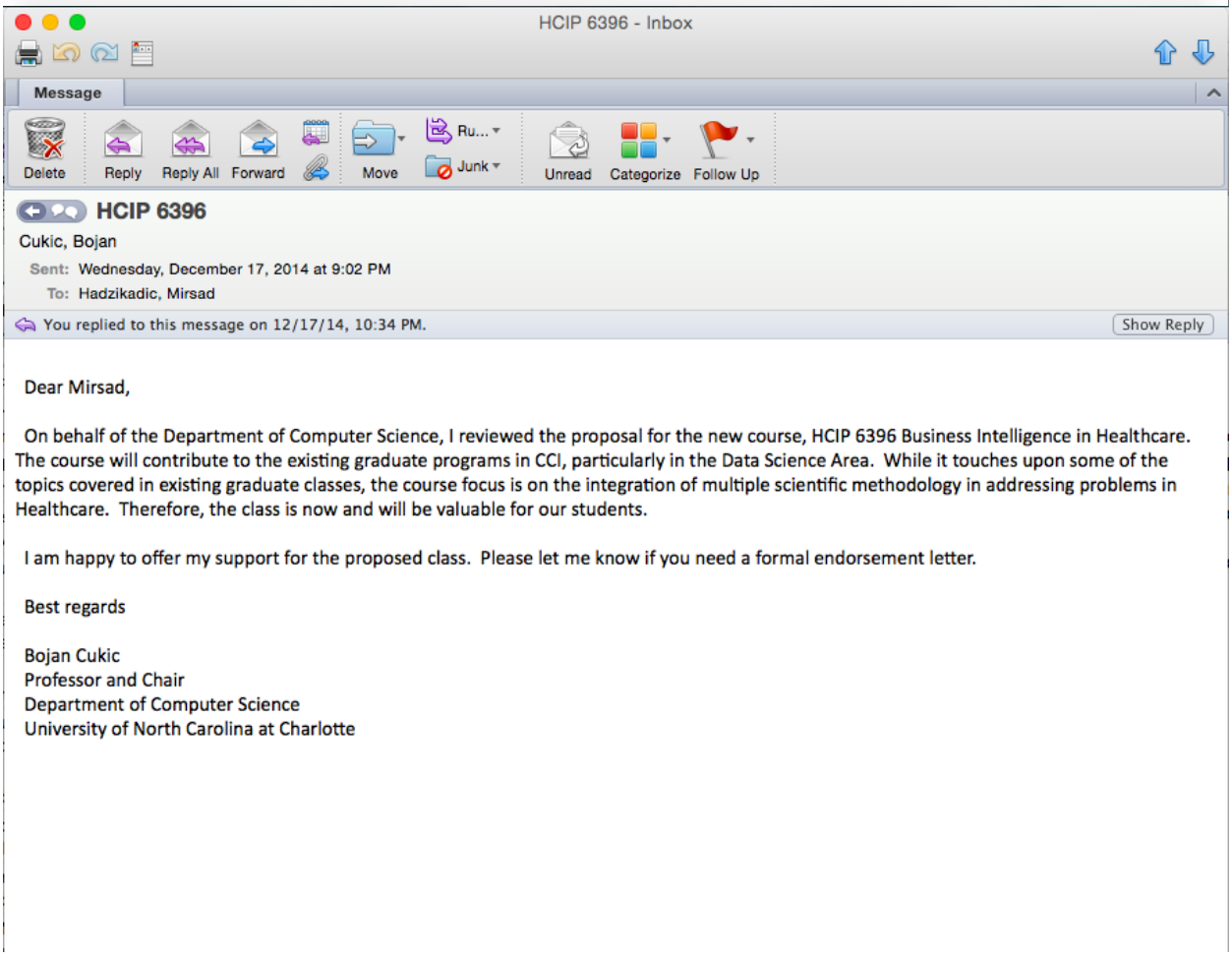
Melanie Sorrell

Evaluator's Signature

12/12/2014

Date


Re: Consultation - HI PSM
Message
Delete
Reply
Reply All
Forward
Move
Junk
Unread
Categorize
Follow Up
Re: Consultation
Mays, Larry
Sent: Thursday, December 11, 2014 at 10:06 AM
To: Hadzikadic, Mirsad
You replied to this message on 12/11/14, 12:27 PM.
Show Reply
Dear Mirsad,
I have have reviewed the "Business Intelligence in Healthcare" course proposal and give it my endorsement. It is a much needed addition to the HI program.
Larry Mays
From: <Hadzikadic>, Mirsad Hadzikadic <mirsad@uncc.edu>
Date: Thursday, December 11, 2014 at 12:55 AM
To: "Sorrell, Melanie" <Melanie.Sorrell@uncc.edu>, "Cukic, Bojan" <bcukic@uncc.edu>, Lawrence Mays <lemays@uncc.edu>, "Hertel, Joshua" <jhertel@uncc.edu>, Dipti Patel-Misra <dmmmisra@gmail.com>, "Zheng, Yuliang" <yzheng@uncc.edu>
Subject: Consultation
Dear colleagues,
Please use the attached updated version of the Business intelligence for Healthcare long form course proposal. One of the attachments needed to be modified (thanks Larry for letting us know).
Regards,
Mirsad
Mirsad Hadzikadic, Ph.D.
Professor, Department of Software and Information Systems
Director, Complex Systems Institute
Faculty Director, Health Informatics Professional Science Master's
Director, Data Science and Business Analytics Professional Science Master's
Director, UNC Charlotte/SSST Program
College of Computing and Informatics / The Graduate School
343-A Woodward Hall
UNC Charlotte
Charlotte, NC 28223
cciweb.uncc.edu/~mirsad
704-687-8643


HCIP 6396 - Inbox
Message
Delete
Reply
Reply All
Forward
Move
Junk
Unread
Categorize
Follow Up
HCIP 6396
Cukic, Bojan
Sent: Wednesday, December 17, 2014 at 9:02 PM
To: Hadzikadic, Mirsad
You replied to this message on 12/17/14, 10:34 PM.
Show Reply
Dear Mirsad,
On behalf of the Department of Computer Science, I reviewed the proposal for the new course, HCIP 6396 Business Intelligence in Healthcare. The course will contribute to the existing graduate programs in CCI, particularly in the Data Science Area. While it touches upon some of the topics covered in existing graduate classes, the course focus is on the integration of multiple scientific methodology in addressing problems in Healthcare. Therefore, the class is now and will be valuable for our students.
I am happy to offer my support for the proposed class. Please let me know if you need a formal endorsement letter.
Best regards
Bojan Cukic
Professor and Chair
Department of Computer Science
University of North Carolina at Charlotte

Attachment 3: Proposed Catalog Copy

HCIP 6396: Business Intelligence in Healthcare (3) Prerequisites: HCIP 6380: Introduction to Health Informatics; HCIP 6108: Decision Analysis; and HCIP 6102: Health Care Data Analysis. Business Intelligence is a collection of computer based techniques used to extract, identify and analyze data. Analytics is key in the transformation of the healthcare industry. Healthcare business intelligence can provide organizations with the ability to improve quality of care, increase financial efficiency and operational effectiveness, conduct innovative research, and satisfy regulatory requirements. Business Intelligence (BI) helps leverage key information at business users finger tips. It provides current and predictive views across the enterprise. Common functions of BI are reporting, data mining, analytical processing, knowledge management, and data visualization. Subjects covered in this course include elements of business intelligence, business analytics, data visualization, data mining, data warehousing, and business performance management. The course includes 3 credit lectures. (On demand)