

Memorandum of Verification  
August 2013

This is to verify that the Proposal for a certificate in Applied Business Data Analytics has been reviewed and approved by the Department of Information System's Faculty on August 20, 2013 in accordance with the *By-Laws of the Department of Information Systems* and the associated *IS Department Committees and Charges* document (both last revised 12/2/2011). The new certificate will not require any additional faculty resources to deliver the program to students.



Michael Goul  
Chair, Department of Information Systems  
W. P. Carey School of Business  
Arizona State University

The completed and signed proposal should be submitted by the Dean's Office to: [curriculumplanning@asu.edu](mailto:curriculumplanning@asu.edu).

Before academic units can advertise undergraduate certificates or include them in their offerings as described in the university catalogs, they must be recommended for approval by the Senate Curriculum and Academic Programs Committee and the University Senate, and be approved by the Executive Vice President and Provost of the University.

**Definition and minimum requirements:**

These are the minimum requirements for approval. Individual undergraduate certificates may have additional requirements.

An undergraduate certificate is a programmatic or linked series of courses from a single field or one that crosses disciplinary boundaries and may be free-standing or affiliated with a degree program. The certificate provides a structured and focused set of courses that can be used to enhance a student's baccalaureate experience or professional development.

An undergraduate certificate program:

- Requires a minimum of 15 semester hours of which at least 12 semester hours must be upper division
- Requires a minimum grade of "C" or better for all upper division courses
- Consists of courses that must directly relate in whole or large part to the purpose of the certificate. Example: Geographic area certificates must include only courses specific to the title of the certificate, other than a non-English language
- Is cross disciplinary; or,
  - Certified by a professional or accredited organization/governmental agency; or,
  - Clearly leads to advanced specialization in a field; or,
  - Is granted to a program that does not currently have a major

**College/School/Institute:** W. P. Carey School of Business

**Department/Division/School:** Information Systems

**Proposed Certificate Name:** Applied Business Data Analytics

**Requested effective Date:** 2014-15

**Delivery method:** Both, On-Campus and ASU Online

*Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and the ASU Online options. Approval from the Office of the Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.*

**Campus/Locations:**

Indicate all locations where this program will be offered.

Downtown Phoenix     Polytechnic     Tempe     West    Other:

**Proposal Contact**

**Name:** Michael Goul

**Title:** Chair

**Phone number:** 480-965-5482

**Email:** michael.goul@asu.edu

**DEAN APPROVAL(S)**

This proposal has been approved by all necessary unit and College/School levels of review. I recommend implementation of the proposed organizational change.

**College/School/Division Dean name:** Amy Hillman

**Signature** \_\_\_\_\_

*Amy Hillman*

**Date:** 9/26/20

**College/School/Division Dean name:**

*(if more than one college involved)*

**Signature** \_\_\_\_\_

**Date:** / /20

*Note: An electronic signature, an email from the dean or dean's designee, or a PDF of the signed signature page is acceptable.*

**1. Overview****A. Provide a brief description of the new certificate.**

Modern decision making is increasingly becoming data-driven and evidence-based. Across the broad landscape of disciplines, it is no longer sufficient to rely on folklore, stories or ad hoc opinions – sophisticated software tools that provide analytical decision support are rapidly becoming a basic ingredient for substantiating and supporting individual, group, organizational and even international-level decision making in areas that all college graduates will find practical and applied. We propose a new certificate that emphasizes evidence-based decision making and offers requisite training in the decision supporting tool suites to make it possible. The applied focus ranges from projects to processes and from advanced Excel skills to the fundamentals of big data analytics for business intelligence. For this certificate, we view data analytics as applied in the context of managing projects, characterizing as-is processes, redesigning them and evaluating alternate redesigns. Tools that can be used to provide analytics and data for projects status reports, the resources required to keep on track, and to identify critical bottlenecks are included. Tool suite skills to convert data into more meaningful visualizations and graphs are covered.

Evidence-based decision making that relies on applied analytics reflects a mindset, a culture and a skillset. It has a proven track record of supporting improved decision making in domains ranging from government policy making to healthcare and to business. Combining the best available data-driven evidence with the expertise individuals, groups and organizations bring to problem solving activities fosters more effective decision making and improved decision outcomes. In addition, critical thinking skills are enhanced when one must consider the proper and most authoritative analytics necessary to assess a situation, a project, a process, make choices among alternatives and evaluate outcomes and scenarios. Communicating, summarizing, conveying and explaining data analytics relevant to a decision opportunity is a critical new skill for graduates. While data volumes are growing exponentially, the tool suites to manage that data are becoming easier to use - even while they are more sophisticated than ever before. The timing is right for a new certificate that can convey the evidence-based mindset and help to establish this decision making culture – and that can concomitantly address tool suite skillset development and communication strategies that rely on evidence.

**B. This proposed certificate (check one):**

- Is cross disciplinary; or
- Is certified by a professional or accredited organization/governmental agency; or,
- Clearly leads to advanced specialization in a field; or,
- Is granted to a program that does not currently have a major.

**C. Why should this be a certificate rather than a concentration or a minor?**

Decision making requires in-depth area expertise and focused, discipline-based training. The proposed certificate is not intended to replace that expertise, nor does it offer in-depth training in decision making theory, decision support system design/development, or the nature of evidence associated with effective decision making in a specific domain. All of these areas of focus are better left to discipline-based concentrations and minors. However, there is a need for applied evidence-based fundamentals adapted from decision making theory and a snapshot of best practices and application skills tailored to collecting, analyzing and presenting data analytics in the context of modern spreadsheet and big data decision support applications. Common tenets of project and process management analytics and descriptive, predictive and prescriptive analytics are rapidly becoming important skills that cut across many disciplines.

**D. Affiliation**

If the certificate program is affiliated with a degree program, include a brief statement of how it will complement the program. If it is not affiliated with a degree program, incorporate a statement as to how it will provide an opportunity for a student to gain knowledge or skills not already available at ASU.

Decision support systems to deal with big data have only recently advanced to a level where applications are easily accessible on personal computers and in the cloud. In addition, methods and commercial systems for leveraging big data for practical project and process management are now emerging. Given this rapid change in the tool suites to support evidence-based decision making in these and other areas, the increasing availability of these sophisticated tools and the new approaches and mindsets associated with data analytics, there has been little time to develop related concentrations

and majors. However, by establishing the Master of Science in Business Analytics degree, the W. P. Carey School has assembled the requisite critical mass of faculty expertise and tool suite experience to deliver this minor. The proposed certificate is not linked to this degree program, but as early movers in the area, the W. P. Carey School is in a unique position to service the certificate program with available faculty expertise.

**E. Demand**

Explain the need for the new certificate (e.g., market demand, interdisciplinary considerations).

IBM’s CEO Ginni Rometty recently stated, “I want you to think of data as the next natural resource.” Abhishek Mehta, the founder of Tresata, added, “Just like oil was a natural resource powering the last industrial revolution, data is going to be the natural resource for this industrial revolution. Data is the core asset, and the core lubricant, for not just the entire economic models built around every single industry vertical but also the socioeconomic models.” [1] Evidence cited in support of these conclusions include the drop in the crime rate in many locations because of evidence-based decision making that harnessed big data tool suites and methods. And more proof is mounting in areas ranging from legal applications to healthcare and to even political campaigns. With this broad range of applications and the rush to build expertise in the area, many organizations are hurting for qualified talent. These organizations need new graduates trained to understand, reason with and apply evidence-based decision support. Not all graduates will be the ones to build the new tools or develop the new algorithms, but they will be important consumers of the new tools who communicate evidence and make decisions based on that evidence. They will face a work world filled with projects to manage, processes to improve and an array of new, modern tool suites that support translating raw data into actionable information and evidence.

[1] Deutcher, M., “IBM’s CEO Says Big Data is Like Oil, Enterprises Need Help Extracting the Value,” SiliconAngle, March 11, 2013, Retrieved from <http://siliconangle.com/blog/2013/03/11/ibms-ceo-says-big-data-is-like-oil-enterprises-need-help-extracting-the-value/>

**F. Projected enrollment**

What are enrollment projections for the first three years?

|                                   | <b>1<sup>st</sup> Year</b> | <b>2<sup>nd</sup> Year</b><br>(Yr. 1 continuing + new entering) | <b>3<sup>rd</sup> Year</b><br>(Yr. 1 & 2 continuing + new entering) |
|-----------------------------------|----------------------------|---|---|
| Number of Students<br>(Headcount) | 100                        | 250   | 500   |

**2. Support and Impact**

**A. Faculty governance**

Provide a supporting letter from the chair of the academic unit verifying that the proposed certificate has received faculty approval through appropriate governance procedures in the unit and that the unit has the resources to support the certificate as presented in the proposal, without impacting core program resources.

Letter of Verification Attached

**B. Other related programs**

Identify other related ASU programs and outline how the new certificate will complement these existing ASU programs. (If applicable, statements of support from potentially-affected academic unit administrators need to be included with this proposal submission.)

**C. Letter(s) of support**

Provide a supporting letter from each college/school dean from which individual courses are taken.

**3. Academic Curriculum and Requirements**

**A. Knowledge, competencies, and skills**

List the knowledge, competencies, and skills (learning outcomes) students should have when they complete this proposed certificate. Examples of program learning outcomes can be found at (<http://www.asu.edu/oue/assessment.html>).

At the outcome of this certificate, students will be able to: 1) Do fundamental and advanced Excel-based analytics including data importing, what-if analysis, graphing, charting and pivot tables, 2) Use a project management tool suite to build a schedule, design and produce schedule reports, export schedule data into Excel and identify schedule bottlenecks, costs and resource management issues, 3) Do a flowchart and swimlane diagram of a business process, simulate a process design with a tool suite, understand process analytics generated by such tool suites, redesign business processes and evaluate different process design alternatives, and 4) Be exposed to business case studies where evidence-based decision making is supported by online analytical processing tool suites, predictive analytics and prescriptive analytics; build a predictive model and evaluate its potential business impact; and understand the tenets underlying data warehouse design and processes within business.

**B. Admissions criteria**

List the admissions criteria for the proposed certificate. If they are identical to the admission criteria for the existing major and degree program under which this certificate will be established, please note that here.

There are no admission requirements for the certificate.

**C. Curricular structure**

Provide the curricular structure for this certificate. Be specific in listing required courses and specify the total minimum number of hours required for the certificate.

**Required certificate courses**

| Prefix                    | Number | Title  | Is this a new Course? | Credit Hours |
|---------------------------|--------|--|-----------------------|--------------|
| CIS                       | 105    | Computer Applications & Information Technology | No                    | 3            |
| xxx                       |        | A Statistics Course                            | No                    | 3            |
| CIS                       | 311    | Business Project Management                    | Yes                   | 3            |
| CIS                       | 308    | Advanced Excel in Business                     | Yes                   | 3            |
| CIS                       | 309    | Business Process Management                    | Yes                   | 3            |
| CIS                       | 405    | Business Intelligence                          | Yes                   | 3            |
| <i>Section sub-total:</i> |        |  |                       | 18           |

**Elective certificate courses**

| Prefix                    | Number | Title | Is this a new Course? | Credit Hours |
|---------------------------|--------|-------|-----------------------|--------------|
|                           |        |       | (Select one)          |              |
|                           |        |       | (Select one)          |              |
|                           |        |       | (Select one)          |              |
|                           |        |       | (Select one)          |              |
|                           |        |       | (Select one)          |              |
| <i>Section sub-total:</i> |        |       |                       |              |

**Other certificate requirements**

E.g. – Capstone experience, internship, clinical requirements, field studies, foreign language skills as applicable

Credit Hours

Section sub-total:

**Total minimum credit hours required for certificate**

D. Minimum residency requirement

How many hours of the certificate must be ASU credit?

12

E. New Courses

Provide a brief course description for each new course.

CIS 311 - Business Project Management - An overview of project management with an emphasis on the fundamentals and on the analytics that can support project decision making. Covers project planning, resource and disruption management and problem resolution skills. Leverages widely available project management computer tools.

CIS 308 - Advanced Excel in Business - Advanced Excel skills are covered in this course using an applied focus on different types of decisions one may analyze using spreadsheet capabilities. Graphs and charts to communicate complex analytics are covered; pivot tables to slice and dice data for reporting are introduced

CIS 309 - Business Process Management - Business process management covers process flow charting, swimlane diagramming, business process simulation using modern tool suites, teaches the types of process evaluation decision analytics most commonly used, and covers applied business process analysis in a variety of contexts.

CIS 405 - Business Intelligence - Business intelligence (BI) is a term describing a broad category of applications, technologies, architectures, and processes for gathering, storing, accessing, and analyzing data to provide business users with timely information to enable better insights into project and process management and evidence-based decision making. BI is based on techniques for data decision capture, cleansing, validation, warehousing and analytics to help decision makers improve decision outcomes. This course provides a capstone understanding of the concepts of managing data resources and the development of business intelligence capabilities using data visualization, data warehousing, data mining, online analytical processing decision support systems and other advanced BI topics.

Note: All new required courses should be submitted in Curriculum Changemaker and ready for Provost's Office approval before this certificate is put on Curriculum and Academic Programs Committee (CAPC) agenda.

**4. Administration and Resources**

**A. Administration**

How will the proposed certificate be administered (including admissions, student advisement, retention, etc.)?

The certificate in applied business data analytics will be administered by the W. P. Carey School of Business and the Department of Information Systems. Students will be advised by Department of Information Systems faculty. Certificate requirements will be verified in a DARS audit.

**B. Resources**

What are the resource implications for the proposed certificate, including any projected budget needs? Will new books, library holdings, equipment, laboratory space and/or personnel be required now or in the future? If multiple units/programs will collaborate in offering this certificate please discuss the resource contribution of each participating program. Letters of support must be included from all academic units that will commit resources to this certificate.

No additional funding or resources are required to support the certificate.

**C. Primary Faculty**

List the primary faculty participants regarding this proposed certificate. For interdisciplinary certificates, please include the relevant names of faculty members from across the University.

| <b>Name</b>       | <b>Title</b>        | <b>Area(s) of Specialization as they relate to proposed certificate</b> |
|-------------------|---------------------|---|
| Kathleen Moser    | Clinical Professor  | Business Project Management   |
| Christopher Olsen | Lecturer            | Business Process Management   |
| Colleen Hayes     | Lecturer            | Advanced Excel in Business  |
| Asim Roy          | Professor           | Business Intelligence   |
| Matthew McCarthy  | Senior Lecturer     | Computer Appls&Info Technologies  |
| Greg Dawson       | Assistant Professor | Business Project Management   |

**5. Additional Materials**

- A. Complete and attach the Appendix document.
- B. Provide one or more model programs of study (if appropriate).
- C. Attach other information that will be useful to the review committees and the Office of the Provost.

## APPENDIX

### OPERATIONAL INFORMATION FOR UNDERGRADUATE CERTIFICATES

(This information is used to populate the [Degree Search/catalog](#) website.

Please consider the student audience in creating your text.)

A. **Proposed Certificate Name:**  
**Applied Business Data Analytics**

B. **Description (150 words maximum)**

The certificate in applied business data analytics is created for students who are interested in practical uses for computer-based tool suites that are capable of managing vast amounts of data, providing sophisticated but easy to use means to manage and analyze that data and to leverage those tools for making good decisions about projects, process designs and fundamental decision making tasks. Exposure to predictive analytics and modeling, big data techniques and visualization provides significant insight into the advanced uses of the computer-based tools. Critical thinking is an important skill and mindset that is required to establish and evaluate evidence-based benchmarks for making good decisions leading to high quality outcomes.

C. **Contact and Support Information**

|  |   |
|--|---|
| Building Name, code and room number: ( <i>Search ASU map</i> ) | BA 301P   |
| Program office telephone number: ( <i>i.e. 480/965-2100</i> )  | 480/965-3352  |
| Program Email Address:   | wpcareyis@asu.edu   |
| Program Website Address:                                       | <a href="http://wpcarey.asu.edu/Information-Systems/">http://wpcarey.asu.edu/Information-Systems/</a> |

D. **Program Requirements:** Provide applicable information regarding the program such as curricular restrictions or requirements, specific course lists, or academic retention requirements.

The certificate in applied business data analytics requires 18 credit hours to complete and is available to all majors. There are no pre-requisite courses; required courses include:

Required Courses:

CIS 105 Computer Applications and Information Technology (3)  
CIS 308 Advanced Excel in Business (3),  
CIS 309 Business Process Management (3),  
CIS 311 Business Project Management (3)  
CIS 405 Business Intelligence (3)  
any statistics course (3)

CIS 105 is a prerequisite to the other four courses. To earn the certificate, students must complete all courses with a grade of "C" (2.00 on a scale of 4.00) or higher.

E. **Additional Admission Requirements** If applicable list any admission requirements (freshman and/or transfer) that are higher than and/or in addition to the university minimum undergraduate admission requirements.)

None

F. **Delivery/Campus Information Delivery:** On-campus only (ground courses and/or iCourses)

*Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and the ASU Online options. Approval from the Office of the Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.*

G. **Campus/Locations:**

Indicate **all** locations where this program will be offered.

Downtown Phoenix     Polytechnic     Tempe     West    Other:



**Jane Lamal Henschler**

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**Subject:** FW: New Courses - Impact Statement Request

----- Forwarded Message

**From:** Ronald Askin <[Ron.Askin@asu.edu](mailto:Ron.Askin@asu.edu)>  
**Date:** Thu, 29 Aug 2013 10:05:08 -0700  
**To:** Michael Goul <[michael.goul@asu.edu](mailto:michael.goul@asu.edu)>  
**Subject:** RE: New Courses - Impact Statement Request

Mike,  
I spoke with our undergraduate committee and also George Runger who is Acting Chair for Biomedical Informatics. We have one basic concern. We would like to see the term "business" or "enterprise" added to the course titles to both reflect the intended content and avoid confusion with our courses and those in BMI. Our undergraduate committee expressed it as

The CS-UPC examined the proposed CIS courses and we found that, although the courses focus on business applications according to the course descriptions, the course titles are too general (except CIS 450). This may give the impression that these courses overlap significantly with our CSE or CPI courses (such as CSE 412 Database Management, CSE 414 Advanced Database Concepts, CPI 310 Web-based Information Management Systems, CPI 400 Scientific Computing & Visualization, and some graduate-level course, if that matters, such as CSE 591 - Data Visualization, CSE 572 - Data Mining).

The CIS program may need to explicitly use terms like "business" or "enterprise" in their course titles. (Interestingly, CIS 375 was mentioned as "Business Data Mining" in Mike's email but the full course proposal calls it simply "Data Mining".)

Can you make this change in the course titles?  
Ron

\*\*\*\*\*  
Ronald G. Askin, Professor and Director  
School of Computing, Informatics, and Decision Systems Engineering  
Arizona State University  
Tempe, AZ 85287-8809  
e-mail: [ron.askin@asu.edu](mailto:ron.askin@asu.edu)  
Phone: 480-965-2567  
<http://cidse.engineering.asu.edu> <<http://www.engineering.asu.edu/>>  
\*\*\*\*\*

**From:** Michael Goul  
**Sent:** Monday, August 26, 2013 5:13 PM  
**To:** Ronald Askin  
**Cc:** Kay Faris; Angelina Saric  
**Subject:** New Courses - Impact Statement Request

Dear Professor Askin,

The Department of Information Systems in the W. P. Carey School of Business is proposing new curriculum to meet the needs of business recruiters. Many organizations are clamoring for individuals trained in data-driven business analytics, and we have been working with our Executive Advisory Board to provide the right courses to meet their needs. As part of the process for getting the courses approved, I am writing to ask that you provide an impact statement. Please do not hesitate to contact me if you would like further information. A form is attached for your assessment, and relevant syllabi are attached for your review. Following are the courses:

- CIS 315 Introduction to Data Analytics, 3 credits
- CIS 355 Data Warehousing and Dimensional Modeling, 3 credits
- CIS 375 Business Data Mining, 3 credits
- CIS 415 Big Data Analytics and Visualization, 3 credits
- CIS 450 Enterprise Analytics, 3 credits

Thank you – I know how busy this time of year is. Unfortunately, we have been given a short fuse to get the courses evaluated through all of our internal School committees, and your statements are a very important

part of that process. If it is possible, I would really appreciate receiving your assessment by this coming Thursday.

Sincerely,  
Mike

**Michael Goul**, Professor and Chair

.....  
W. P. Carey School of Business  
Department of Information Systems  
Arizona State University  
P.O. Box 874606  
Tempe, AZ 85287-4606  
p 480 965 5482  
f 480 727 0881  
e [Michael.Goul@asu.edu](mailto:Michael.Goul@asu.edu)

For Department News and Analysis, visit <http://www.wpcarey.asu.edu/knowIT>

----- End of Forwarded Message

**Jane Lamal Henschler**

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**Attachments:** George Runger Impact Form Aug2013.pdf

**From:** George Runger <[George.Runger@asu.edu](mailto:George.Runger@asu.edu)>  
**Date:** Thu, 29 Aug 2013 09:52:24 -0700  
**To:** Michael Goul <[michael.goul@asu.edu](mailto:michael.goul@asu.edu)>  
**Subject:** RE: New Courses - Impact Statement Request

Michael

I added the following to the comments for each course except CIS 450. There is no objection to the courses being offered, but the concern is with the titles. Hopefully this relatively minor change can be made.

There is no objection to the courses, but the titles are too broad in scope (except for CIS 450). We have a number of undergraduate courses on similar topics but with a health care or bioinformatics focus and our courses indicate the focus in the title. My recommendation is that the titles for the proposed courses include the application/domain focus.

**From:** Michael Goul  
**Sent:** Monday, August 26, 2013 5:15 PM  
**To:** George Runger  
**Cc:** Kay Faris; Angelina Saric  
**Subject:** New Courses - Impact Statement Request

Dear Professor Runger,

The Department of Information Systems in the W. P. Carey School of Business is proposing new curriculum to meet the needs of business recruiters. Many organizations are clamoring for individuals trained in data-driven business analytics, and we have been working with our Executive Advisory Board to provide the right courses to meet their needs. As part of the process for getting the courses approved, I am writing to ask that you provide an impact statement. Please do not hesitate to contact me if you would like further information. A form is attached for your assessment, and relevant syllabi are attached for your review. Following are the courses:

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CIS 450 Enterprise Analytics, 3 credits

Thank you – I know how busy this time of year is. Unfortunately, we have been given a short fuse to get the courses evaluated through all of our internal School committees, and your statements are a very important part of that process. If it is possible, I would really appreciate receiving your assessment by this coming Thursday.

Sincerely,  
Mike

Michael Goul . Professor and Chair  
.....  
W. P. Carey School of Business  
Department of Information Systems  
Arizona State University  
P.O. Box 874606  
Tempe, AZ 85287-4606  
p. 480.965.5482  
f. 480.727.0881  
e. [Michael.Goul@asu.edu](mailto:Michael.Goul@asu.edu)

For Department News and Analysis, visit <http://www.wpcarey.asu.edu/knowIT>

----- End of Forwarded Message

## Impact Assessment

**TO:** George Runger  
**UNIT:** Department of Bioinformatics

**FROM:** Michael Goul  
**UNIT:** Department of Information Systems, W. P. Carey school of Business

**DATE:** 8/26/2013

As a step in the procedures governing new course approval, the attached course proposals and syllabi are provided for your review and response.

Please complete this form and return to Michael Goul by Thursday, August 29, 2013.

**Proposed New Course Prefix/Number:** CIS 315  
**Title:** Introduction to Data Analytics

- I have no objection to the proposed course.  
 I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

There is no objection to the courses, but the titles are too broad in scope (except for CIS 450). We have a number of undergraduate courses on similar topics but with a health care or bioinformatics focus and our courses indicate the focus in the title. My recommendation is that the titles for the proposed courses include the application/domain focus.

**Proposed New Course Prefix/Number:** CIS 355  
**Title:** Data Warehouses and Dimensional Modeling

- I have no objection to the proposed course.  
 I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

There is no objection to the courses, but the titles are too broad in scope (except for CIS 450). We have a number of undergraduate courses on similar topics but with a health care or bioinformatics focus and our courses indicate the focus in the title. My recommendation is that the titles for the proposed courses include the application/domain focus.

**Proposed New Course Prefix/Number:** CIS 375

**Title:** Data Mining

- I have no objection to the proposed course.  
 I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

There is no objection to the courses, but the titles are too broad in scope (except for CIS 450). We have a number of undergraduate courses on similar topics but with a health care or bioinformatics focus and our courses indicate the focus in the title. My recommendation is that the titles for the proposed courses include the application/domain focus.

**Proposed New Course Prefix/Number:** CIS 415

**Title:** Big Data Analytics & Visualization

- I have no objection to the proposed course.  
 I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

There is no objection to the courses, but the titles are too broad in scope (except for CIS 450). We have a number of undergraduate courses on similar topics but with a health care or bioinformatics focus and our courses indicate the focus in the title. My recommendation is that the titles for the proposed courses include the application/domain focus.

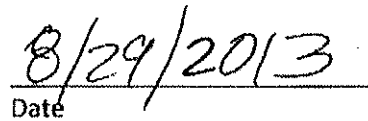
**Proposed New Course Prefix/Number:** CIS 450

**Title:** Enterprise Analytics

- I have no objection to the proposed course.  
 I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

  
Signature

  
Date

# Impact Assessment

**TO:** Ann McKenna  
**UNIT:** Department of Engineering, College of Technology and Innovation

**FROM:** Michael Goul  
**UNIT:** Department of Information Systems, W. P. Carey school of Business

**DATE:** 8/26/2013

As a step in the procedures governing new course approval, the attached course proposals and syllabi are provided for your review and response.

Please complete this form and return to Michael Goul by Thursday, August 29, 2013.

**Proposed New Course Prefix/Number:** CIS 315  
**Title:** Introduction to Data Analytics

- X I have no objection to the proposed course.
- I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

**Proposed New Course Prefix/Number:** CIS 355  
**Title:** Data Warehouses and Dimensional Modeling

- X I have no objection to the proposed course.
- I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

**Proposed New Course Prefix/Number:** CIS 375

**Title:** Data Mining

- X I have no objection to the proposed course.
- I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

**Proposed New Course Prefix/Number:** CIS 415

**Title:** Big Data Analytics & Visualization

- X I have no objection to the proposed course.
- I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

**Proposed New Course Prefix/Number:** CIS 450

**Title:** Enterprise Analytics

- X I have no objection to the proposed course.
- I object to the proposed course.

**Reasons for objection and/or other comments/recommendations:**

*Ann McKenna*

Signature

9/12/13  
Date