**Improvements by Program Driven by Assurance of Learning**

**Academic Year 2015/2016**

Table of Contents

1. BS in Business – Significant Changes Related to AoL Assessment Process 2

2. Quantitative Finance (QF) - Significant Changes Related to AoL Assessment Process 4

3. MS in Business Intelligence and Analytics – Significant Changes Related to AoL Assessment Process 5

4. Enterprise Project Management (EPM) – Significant Changes Related to AoL Assessment Process 7

5. Master of Business Administration (MBA) 9

6. Master of Science in Information Systems (MSIS) - Significant Changes Related to AoL Assessment Process 10

7. MS Management (MSM) - Significant Changes Related to AoL Assessment Process 12

8. MS Technology Management (MSTM/EMBA) - Significant Changes Related to AoL Assessment Process 13

9. MS Finance (MFIN) \_ Significant Changes Related to AoL Assessment Process 15

10. Doctor of Philosophy in Business Administration - Significant Changes Related to AoL Assessment Process 16

# BS in Business – Significant Changes Related to AoL Assessment Process

**Bachelor of Science in Business**

**Top Significant changes made to this program driven by Assurance of Learning**

**INTRODUCTION AND OVERVIEW OF BS BUSINESS DEGREE**

The BS Business program includes the following majors: Business & Technology, Finance, Management, Marketing, Information Systems and a sixth major – Economics – was added during academic year 2014-2015. Following feedback from faculty and from industry during 2015-2016 the Accounting and Analytics major will be added during academic year 2016-2017. Students in all majors share the same core curriculum, which includes the Liberal Arts and Science Core, Business Core, and Practice Core. The BS Business program started in academic year 2013-2014, and it took the place of BS Business & Technology that has been running since Fall 2000.  The reason for the change is that under BS Business & Technology there was only one major – the Business & Technology major. **Starting fall 2016, various majors will exist that reflect well the degree of Bachelor of Science in Business.**

Since 2007, under the BS Business & Technology degree, the program followed strong assurance of learning processes that are being continued with the BS Business degree.  The goals of the program have been assessed 4-6 times depending on the goal. **Following the AOL accreditation committee’s recommendation in 2015**, to simplify the assessment process, we have begun to **automate the team assessment goal (goal 2)**, and now also focus on assessing three AOL goals. More detailed results from goal assessments and corresponding steps taken to address those specific goals are documented in the individual goal booklets.  Below we have summarized more significant changes that have resulted from the AOL assessment feedback. These significant changes were also informed by other forms of feedback outside of Assessment of Learning, including student interviews and course reviews, benchmarking our programs relative to other universities, and an in-depth review of the program conducted by faculty.

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| **1** | Drawing on, e.g., AOL goal 3 trait “The student demonstrates creative and innovative thinking” and other feedback from students, faculty and benchmarking other universities, we added various courses in the **Bachelor of Science in Business** including: 1) **Decision making and 2) Creativity and Innovation**. The courses, e.g., Decision Making, also support other AOL learning objectives, including AOL learning **goal 1 oral communication** (e.g., students present case studies) and AOL learning **goal 2 effective** **team work** (e.g., students collaborate and lead teams).  |
| **2** | Based on goal 3 (leveraging technology for business success) and other feedback from students, faculty and benchmarking other institutions, students in the Bachelor of Science in Business in the, e.g., Economics major, can take additional technology oriented courses, including **Econometrics** which enables to quantify theoretical models.  |
| **3** | The Bachelor of Science in Business Program takes great effort to address the importance of Business Ethics, which is explicitly addressed in many classes. All students in the BS in Business have begun to take an ethics Module, starting 2016.  |
| **4** | Based on goal 3 (leveraging technology for business success) and other feedback, students in the Business & Technology major can **take a wider variety of business courses** in the Business and technology concentration. In the business concentration, s**ince 2015-2016** students have **greater selection**, and specialties can now include, finance, Management, Marketing, Information Systems, Economics, as well as **Accounting and Analytics** in the future. The technology concentrations includes: IS, Computer Science, Environmental Science, Biotechnology, Green Technology, Music & Technology, Arts & Technology, History & Philosophy of Technology and Science.Prior to the expanded business concentrations, students had a more restricted choice of coursework besides elective selections. The **additional concentrations in business,** combined with the technology concentrations, provide students more choice and ensure they are developing specialty areas in both business and technology. In addition to goal 3, these changes are in line with the SOB Vision and Mission and program goals, which all emphasize the importance of being a business school with technology at our core.  |
| **5** | Based on goal 2 (effective team work) and other feedback, we fine-tuned the “practice core” courses that focuses on team projects that challenge students to solve real-world problems that are cross-functional in nature. In several of the courses, students focus on performing strategic due diligence analyses and strategic planning for large public firms. In another course, students learn about identifying market opportunities. Lastly, in two remaining courses students work on a project their entire senior year in which they have the option to either be matched up with an actual company as their “client” or work on a start-up business. All projects have an underlying business problem that needs solving. Projects culminate in group presentation as part a campus-wide Innovation Day.  |
| **6** | Based on goal 1 (oral and written communication) evaluations and other feedback, all students continue to take a freshman writing course, which was modified and perfected by the College or Arts and Letters. This continues to provide the students a strong basis they then work and develop during the course of the curriculum, and then are evaluated in senior year.  |
| **7** | Our goal 3 assessments (leveraging technology for business success) and other feedback, we determined that although students were getting exposure to business fundamentals, the opportunity for students to develop a specialty in a **particular business** **area was still not broad enough**. This still limited students’ ability to have sufficient business acumen in a particular business domain so that they could have greater ability to leverage technology for business solutions. A **detailed ongoing review** was done and it was **decided to gradually adjust the curriculum** **and expand our SOB’s offerings beyond Business & Technology, Finance, Management, Marketing and Information Systems, to include Economics and in the future Accounting Analytics.**  The latter two new majors and the remaining majors all take the same core, as well as 6-8 courses in their major. We also continued to adjust the Business & Technology curriculum to reflect the additional majors that were added. In the new curriculum, students take the Business Core but **will also have a much wider selection** of business concentrations to specialize in, which includes 4 courses in one of seven business areas (Finance, Management, Marketing, Information Systems, **Economics and Accounting & Analytics).** |

# Quantitative Finance (QF) - Significant Changes Related to AoL Assessment Process

**Bachelor of Science in Quantitative Finance**

**Top Significant changes made to this program driven by Assurance of Learning**

**INTRODUCTION AND OVERVIEW OF THE BS QUANTITIATIVE FINANCE DEGREE**

Stevens Institute of Technology offers one of the first four-year undergraduate program of its kind, in Quantitative Finance.   B.S. in Quantitative Finance provides students with the skill levels equivalent to what would be expected from the graduate of a premier masters degree program in financial engineering.  A relatively young field, Quantitative Finance is just 10-15 years old and until about 2009 it had been offered exclusively at the Master’s and PhD level. Stevens’ revolutionary undergraduate program is cross-disciplinary and combines curriculum from quantitative methods, computer science and finance.

The program was officially launched in Fall 2009, and is now in its fifth academic year. As with most new programs, the incoming freshmen classes were small at first with only about a dozen students that we’ve grown to about 25 incoming students in Fall 2013. We also welcomed many internal transfer students from other majors, especially Mathematics and Engineering. The program now has about 100 total full-time students. We started the Assessment of Learning processes in the 2012/13 Academic year, as at that point we had a critical mass of students and significant curriculum was developed and ready for assessment. The most significant changes from the assessments conducted so far are below.

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| 1 | Enrollment approaching 50 for entering classand average SAT score up. |
| 2 | Hanlon 2 new QF Lab with 30 more workspaces and 12 new Bloomberg terminals completed on Babbio first floor  |
| 3 | New student managed investment fund course launched with assets under management quadrupling to around $400k in the past year. Advised by Professors and managed by Stevens Finance Students. |
| 4 | Curriculum revised to include a new course in R software certification and a sophomore year two semester sequence in basic and time series econometrics. |
| 5 | Placement and starting salaries for QF rising  |

# MS in Business Intelligence and Analytics (BIA) – Significant Changes Related to AoL Assessment Process

**Masters of Science in Business Intelligence and Analytics (BI&A)**

**Top Significant changes made to this program driven by Assurance of Learning**

**INTRODUCTION AND OVERVIEW OF BI&A PROGRAM**

[*The Masters of Science in Business Intelligence and Analytics (BI&A)*](https://www.stevens.edu/howe/academics/graduate/business-intelligence-analytics-bi-ms/msbi-overview), a STEM program, is a unique 36-credit degree for part-time or full-time students who have completed undergraduate degrees in quantitative disciplines such as science, mathematics, computer science or engineering. The degree is designed for individuals who are interested in careers in analytical fields and the coursework focuses on industry-specific applications in areas such as marketing, finance, pharmaceutical, underwriting, manufacturing, information technology, telecommunications, energy and engineering.

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| **1** | In order to more efficiently assess student knowledge surrounding key topic areas in the BI&A program, we will be implementing in the Fall of 2016 an automated assessment tool. The tool will consist of a multi-choice exam covering all aspects of the program and will help to more efficiently assess our students’ assimilation of the basic concepts of the program and their readiness for meaningful analytics project work. |
| **2** | A high-level of database skills is a prerequisite to satisfactory performance in data analytics. Our students vary widely with respect to their skills in this regard[[1]](#footnote-1). As a result, MIS 630 now requires that all students obtain certification in a free SQL MOOC[[2]](#footnote-2) offered by Stanford. This will free-up course time for new database concepts and ensure that all students are really competent in SQL. |
| **3** | In the Fall of 2016, students participating in the R and Python bootcamps will be required to complete there technical training by obtaining a certificate of completion in an advanced R and Python MOOC. |
| **4** | A Professional Skills Workshop will be introduced in the Fall of 2016.  The course is for 1-credit so that it can be used with two 1-credit semesters of the CPT course BIA 702 to make up a 3-credit elective course. This workshop will help students to better orient themselves to the job market. |

**STRUCTURAL CHANGES – Influenced by Advisory Board, Alumni, market needs, etc.**

**Overall Program Improvement**

After discussions with the BI&A Program Board, we’ve implemented a unique three level architecture focused on developing the necessary Professional Skills, Disciplinary Knowledge, and Technical Skills in BI&A. Each level of the architecture has been implemented with a range of offerings (e.g., workshops, “boot camps”, on-line training, speaker series, class room instruction) intended to help students develop the appropriate skills and knowledge to be effective as they transition into the work place. We are supplementing this with MOOCs as a vehicle to build technical competency and disciplinary knowledge.

# Enterprise Project Management (EPM) – Significant Changes Related to AoL Assessment Process

**Masters of Science in Project Management (EPM)**

**Top Significant changes made to this program driven by Assurance of Learning**

**INTRODUCTION AND OVERVIEW OF BI&A PROGRAM**

The M.S. in Enterprise Project Management degree was launched in Fall 2012. Previous to the EPM degree, Stevens offered a graduate certificate in Project Management (PM) as well as concentrations in PM that are available in the following degrees: MBA, M.S. in Management (MSM), and the M.S. in Information Systems. The majority of PM students were in the MSM degree program so the PM Program has been managed in conjunction with that program. As such, we leveraged learning goals and improvements based on experience in the MSM program.

The EPM program at Stevens is focused on the business aspects of project management. That distinguishes our program from other PM programs that are frequently in engineering schools. We developed a curriculum and learning goals that captured this focus on business.

The first two learning goals are common across many degrees in the School of Business: 1) effective communications and 2) effective teaming.

Effective communications for all programs is assessed in MGT 609 (Project Management Fundamentals). Specific improvements are detailed below.

For the teaming goal, the faculty are establishing a repository for best practices in achieving this goal so they can share pedagogy, content and course resources.

The third goal is demonstrating how a project provides business value which strikes at the core of the learning objectives for the EPM degree. Based on business courses such as Strategy, Marketing and Accounting and Project Management courses, students are asked to show the relationship between the successful execution of projects and creating business value for organizations. This goal had its first assessment in AY 2012-2013.

The fourth goal is understanding project leadership. The PM faculty that developed this goal and assessing it have extensive experience with the teaming goal.

The program is also accredited by the Project Management Institute (PMI). PMI did an on-site evaluation of the program in September 2011. They provided a series of recommendations that have implemented or are in the process of implementing. These are:

1. Develop rubrics to measure learning goals
2. Add an advisory board to provide additional guidance on practical applications and research areas of interest
3. Ensure faculty support for larger classes (we now have a TA to support the PM faculty)

**CURRICULUM CHANGES - Influenced by AOL**

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| **1** | Formed and convened Management Programs Advisory board. Initiated their efforts to review curriculum relevance to market demands. |
| **2** | Formalized an improvisation skills module in MGT 619 – the introduction of this module work in conjunction with our team leadership and communications skills learning objectives |
| **3.** | Reviewed overall curriculum and made specific recommendation to remove MGT 689 and one other course in order to bring it down to 30 credits to make it more in line with the MSM degree remove overlap of info and make EPM a more competitive program in line with MSM. |

# Master of Business Administration (MBA)

**Masters of Science in Business Administration (MBA)**

**Top Significant changes made to this program driven by Assurance of Learning. Also includes structural changes influenced by input from advisory board, alumni, market need, etc.**

**INTRODUCTION AND OVERVIEW OF MASTER OF BUSINESS ADMINISTRATION**

The School of Business’ 48-credit, MBA is flexible and aimed at professionals who wish to further their career while continuing to work full time. The program offers a comprehensive, streamlined learning experience that prepares students to be technology-savvy business leaders. The program was designed with input from Howe faculty, feedback from students and advice from the School’s advisory board which is comprised of top industry leaders in the metropolitan region. The program employs innovative pedagogical techniques and small class sizes, enabling students to rapidly assimilate the knowledge they need to move their career forward. The result is a unique MBA program that incorporates Stevens core competencies in technology, innovation and entrepreneurship into the learning experience

Incorporating a technology-centric approach with skills development along the core **Four C**’s, the MBA program is designed to help students succeed in today’s fast-paced technology-driven environments. Students graduate with an understanding of how those skills contribute to excellence at the intersection of business and technology. More importantly, through coursework and other learning experiences, they will learn to apply their new skills to solve real-world problems and challenges. The **4C**’sare embedded throughout the Stevens School of Business MBA experience. They are stressed through the topics that the students study enabling them to grasp their implications for business and technology. Students are challenged to apply them to complete course assignments and master new concepts and material.

**CURRICULUM CHANGES – Influenced by AOL**

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| ***1*** | Reviewing MFT exam as part of AoL process for the Fall 2016 semester for all MBA students. |
| ***2*** | In order to strengthen communication skills learning objectives we incorporated communication presentation skills workshop throughout all corporate MBA cohorts to MBA Communications skills workshops in executive MBA courses. |
| ***3*** | Took initial steps to incorporate (mgt 695) Creative Collaborations course into corporate cohort MBA curriculum. This addition strengthens our efforts in relation to the Team skills learning objective. |
| ***4*** | Formed and convened Management Programs Advisory board. Initiated their efforts to review curriculum relevance to market demands. |
| ***5*** | Repositioned MGT 620 –Statistical Models as a required course for all MBA students seeking to obtain a concentration in finance, BI&A and Project Management. This change especially supports our critical thinking skills learning objectives. |
| ***6*** | Enhanced Field Consulting project to make sure there will be enough projects for every MBA student.  |

# Master of Science in Information Systems (MSIS) - Significant Changes Related to AoL Assessment Process

**Masters of Science in Information Systems (MSIS)**

**Top Significant changes made to this program driven by Assurance of Learning**

**INTRODUCTION AND OVERVIEW OF MSIS**

The MSIS program is offered as part-time and full-time graduate program with 3 concentration options. All students take 3 core business courses, followed by 6 Information Systems courses. Students can choose between threee concentrations (Business Intelligence & Analytics, BPM & Service Innovation, Project Management) and 3 free-choice electives to complete their degree.

The program has undergone strong assurance of learning processes. The four goals of the program are being assessed once a year.

More detailed results from goal assessments and corresponding steps taken to address those specific goals are documented in the individual goal booklets.  A number of major changes were made, as follows:

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| **Top Significant changes made to this program driven by Assurance of Learning** |
| **1** | Goal 3: alignment of business and IT; IT driving competitive advantageIn analyzing the raw data there were many low scores in the two traits that are directly related to partnership and competitive advantage. This is in part because the assignment was not well understood. We will take steps to clarify the assignment when it is given. Because these two traits are extremely important we will do more research to find compelling information in these areas and present in a more interact way. In addition new readings will be added. |
| **2** | Critical thinkingMIS 630: Structured Query Language (SQL) Programming Exercises.MIS 630 Data Management is a required course for MSIS and BIA students, and often taken as an elective from students in other programs. Student and industry feedback continues to highlight the value of hands-on database skills, including proficiency in SQL. Students were directed to various online tutorials and other resources to complete SQL exercises that were discussed in subsequent class meetings. Instructors for MIS 630 plan to expand the use of online SQL resources in upcoming semesters. |
| **3** | Goal 2: team workMultiple classes: Increased group/team activity and in-class presentations.In sections of several core courses, as well as electives we adjusted the assignments to promote more overall student activity and interaction. This included removing some individual assignments and replacing them with group activities. In all sections, students were placed into groups at the beginning of the respective terms and worked through a series of team assignments. Subject matter was discussed in class and students were provided some classroom time to convene. Student groups then continued work on the assignments via email and/or team meetings. Both team and individual assignments were presented in class throughout the semester and going forward we are seeking to have each student present three (3) times either individually or as part of a team presentation. |
| **4** | In order to strengthen individual written and presentation communication skills the study plan has been pre-structured based on English aptitude test results. For students with language challenges communication intensive classes are deferred to the second semester to allow them to develop stronger communication skills in familiar subjects first. |

# MS Management (MSM) - Significant Changes Related to AoL Assessment Process

**Masters of Science in Management (MSM)**

**Top Significant changes made to this program driven by Assurance of Learning. Also includes structural changes influenced by input from advisory board, alumni, market need, etc.**

**INTRODUCTION AND OVERVIEW OF MS MANAGEMENT**

The Master of Science in Management (MSM) program is a generalist graduate business program designed specifically for individuals with non-business academic backgrounds/degrees. Students do not need any professional work experience to be admitted to this 30-credit program. Grounded in the fields of management, economics, applied psychology, and quantitative methods, the unique 10-course curriculum encompasses the primary business disciplines to help students round out their undergraduate training and experience. Students learn how economics, technology, social science and quantitative methods can be used to solve today’s complex and managerial challenges.

In today’s competitive global workplace, having the right technical skills is extremely important, but it is often not enough. Businesses need people who can enter the workplace with the ability to transform technical expertise into business solutions. Through the MSM coursework and other learning experiences, students are guided in developing a core set of critical thinking, collaboration, communication and innovation skills that are keys to success at the intersection business and technology. The MSM curriculum helps students master business fundamentals and enrich their capacity to communicate effectively across business and technical domains.

Stevens is renowned for excellence in project management, leadership and innovation management. Not only are these skills important to technical professionals, they will also give students a competitive edge regardless of their previous field of study or current type of work. The faculty include thought leaders who are experienced professionals, many of whom were managers at Fortune 500 organizations.

The MSM program is well-suited to new, high-caliber graduates with little or no previous professional experience. Those individuals who seek additional business skills to complement their undergraduate training before entering the job market will emerge with strong management skills.

**CURRICULUM CHANGES - Influenced by AOL**

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| **1** | Formed and convened Management Programs Advisory board. Initiated their efforts to review curriculum relevance to market demands. |
| **2** |  Enhanced marketing for MSM program to undergraduate engineering students ensuring them of the benefits of learning the language of business through the program. |
| **3** | Currently reviewing options to add more electives into the program while not affecting the need for basic business courses. |

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# MS Technology Management (MSTM/EMBA) - Significant Changes Related to AoL Assessment Process

**Masters of Science in Technology Management/Executive MBA (MSTM/EMBA)**

**Top Significant changes made to this program driven by Assurance of Learning. Also includes structural changes influenced by input from advisory board, alumni, market need, etc.**

**INTRODUCTION AND OVERVIEW OF MS TECHNOLOGY MANAGEMENT**

The Stevens Master of Science in Technology Management (MSTM) is a 36-credit degree program designed for experienced professionals having over 5 years of work experience who are motivated to become transformational business leaders in technology and management.

Students gain cutting-edge knowledge in product and process innovation, entrepreneurship and strategic project management and learn how to lead in today’s progressive, competitive business world.

Graduates gain the skills to understand and leverage today’s rapidly changing technological landscape to solve challenging business problems, position technology effectively to reach business goals and lead innovation across organizations.

Students engage with faculty members who were industry leaders at Fortune 500 companies and government agencies and daily practitioners of the skills they teach. This program offers a unique blend of small class sizes, intense collaboration and professional networking opportunities. Graduates leave Stevens with better communications, interpersonal and team skills to plan, implement and manage leading-edge practices in technology management.

MSTM/EMBA

**CURRICULUM CHANGES - Influenced by AOL**

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| **1** | In order to extend continuity within the teaming and collaboration thread, we repositioned EMT641, Marketing to the spring semester, year 1. (This is a team intensive course). At the same time we kept EMT 740 –Team Leadership Development in the preceding fall semester, (year 1). In addition, we moved the West Point Team Leadership experience to the spring of year 1. This reorganization better helps us to follow up with students on their team leadership development goals and generally supports our efforts in relation to the team leadership learning objective.  |
| **2** | We moved the international trip, which is part of EMT 630 to the final semester of the EMBA so students can better use the trip as a skill and concept integration experience. |
| **3** | We also positioned EMT 798, Integration and Application of Technology Management as the final course in the EMBA curriculum. This capstone experience is utilized for all MBA students to bring together everything they have learned in silos. |
| **4** | We moved EMT 606 Economics to the first fall semester in order to ensure students could better apply those principles in subsequent coursework and to help the appreciate how economics are the foundation for other business fundamentals. |
| **5** | We introduced EMT 678 Big Data Seminar into the MSTM/EMBA curriculum. The addition of this course strengthened our efforts in relation to the Critical thinking skills learning objective and also helps students have a fundamental understanding of an important emerging skill set I today’s workplace.  |
| **6** | Formed and convened Management Programs Advisory board. Initiated their efforts to review curriculum relevance to market demands  |

# MS Finance (MFIN) - Significant Changes Related to AoL Assessment Process

This program is new as of Spring 2016. Changes will be tracked going forward.

# Doctor of Philosophy in Business Administration - Significant Changes Related to AoL Assessment Process

**Doctor of Philosophy in Business Administration**

**Top Significant changes made to this program driven by Assurance of Learning**

**INTRODUCTION AND OVERVIEW OF Ph.D. DEGREE**

The Ph.D. program at the School of Business at Stevens is predominantly a fulltime program preparing the students for a successful academic career. It is 54 credit degree. The Ph.D. program’s designation and structure were changed over the academic year 2016. The Ph.D. program’s designation was changed in the beginning of the fall semester 2015 from Technology Management with its 3 research areas (Information Systems, Technology and Innovation Management and Social Computing) to a Ph.D. in Business Administration with 3 areas of research: Innovation & Entrepreneurship, Information Systems & Analytics and Finance. The curriculum was completely revised and new policies were defined. The final curriculum approval is currently pending.

The three learning goals of the program have been assessed. We have also solicited other forms of feedback outside of Assessment of Learning, including interviewing students. A number of major changes that were motivated by the assessments were made, as follows:

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| **1** | Our assessment showed that none of the students finishing their third year have defended their dissertation proposals. The identified gap led to changes in the qualifying policies. It is now a two stage process. Each individual student has to defend after the first year and after the second year a research paper as part of the qualification process. It is expected that this process will lead to reduce the lead time of proposal and dissertation defenses. The goal is that students will ideally defend their dissertation proposals within 3 years and their dissertation within four years. The qualifying policy was approved by the faculty in the spring semester 2016. |
| **2** | The program’s learning goals were changed. Goal 1 was revised and the original Goals 2 and 3 were merged. Goal 3 was newly defined and represents the need for developing teaching skills. |
| **3** | The assessment of Goal 1 changed and will be conducted by the qualifying examination committee. |

1. Database skills measured in MIS AoL Goal 5 are generally less than desirable. [↑](#footnote-ref-1)
2. MOOC – Massive Open Online Course [↑](#footnote-ref-2)