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

**Academic Year 2018/2019**

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**1. Bachelor of Science 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 Innovation & Analytics, Information Systems, Economics and following feedback from industry and faculty an Accounting and Analytics major was added. An Accounting minor was approved during academic year 2017-2018. After receiving feedback from faculty, students and the BOD, the Marketing major was rebranded as Marketing Innovation & Analytics to reflect a change in curriculum completed in Spring 2019.

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, seven majors 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 7-9 times depending on the goal. Following the AOL accreditation committee’s recommendation in 2015, to simplify the assessment process, we have begun to successfully 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 noteworthy 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.

**CURRICULUM CHANGES - Influenced by AOL**

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| 1. Drawing on, for example, AOL goal 3 trait “The student demonstrates creative and innovative thinking” and other feedback from students, faculty and benchmarking other universities, we continued, during 2017-2018, to effectively roll out 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 teamwork (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, are at present taking supplementary technology oriented courses, including Econometrics which enables to quantify theoretical models.  |
| 3. The Bachelor of Science in Business Program continues to invest countless effort to address the importance of Business Ethics, which is implicitly tackled across countless classes. All students in the BS in Business are continuing to take an ethics Module. |
| 4. Based on goal 3 (leveraging technology for business success) and other feedback, students in the Business & Technology major can currently take a wider range of business classes in the Business and technology concentration. In the business concentration, since 2016-2019 students have superior selection, and specialties now include, Finance, Management, Marketing Innovation & Analytics, Information Systems, Economics, as well as Accounting and Analytics. During academic year 2016-2017, we completed the roll out of all courses related to the new majors in Finance, Marketing, Information Systems, Economics and Management. We also finalized the Accounting and Analytics 5th year curriculum.During academic year 2017-2018 additional courses were approved including, Intermediate Accounting I and II as well as the Accounting minor. Additionally, Syllabi for two tax courses were approved by the UCC: Federal Taxation of Business Entities and Federal Taxation of Individuals. A course on Auditing was approved by the UCC during Spring 2019.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 constrained choice of coursework besides elective selections. The extra concentrations in business, combined with the technology concentrations, provide students more choice and ensure they are developing specialty capacity 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 persisted to hone the “practice core” courses that focus on team projects that challenge students to solve real-world problems that are cross-functional by nature. In numerous courses, students continue to center on performing strategic due diligence analyses and strategic planning for large public firms. In a different course, students discover how to identify market opportunities. Lastly, in two remaining courses students work on a project throughout their 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 conclude with a group presentation as part of a campus-wide Innovation Day. Notably, during academic year 2016-2017, a comprehensive review of senior design for BSB was conducted, a plan was completed and reviewed by the UCC and its implementation continued during 2017-2018. |
| 6. Based on goal 1 (oral and written communication) evaluations and other feedback, all students carried on taking a freshman writing course during 2017-2019, which was improved and perfected by the College or Arts and Letters. This continues to provide BSB students with a strong basis they then work and cultivate during the course of the curriculum, and later on are assessed in senior year. |
| 7. Our goal 3 assessments (leveraging technology for business success) and other feedback, suggested that while students were getting exposure to business fundamentals, the opportunity for students to develop a specialty in a particular business area was still not comprehensive enough. This narrowed students’ ability to have ample business acumen in a particular business field so that they could have greater ability to leverage technology for business solutions. A detailed ongoing review was implemented and it was decided to gradually adjust the curriculum and expand our SOB’s offerings beyond Business & Technology, Finance, Management, Marketing Innovation & Analytics which has an expanded curriculum, Information Systems and Economics, to include Accounting & Analytics *as well as* an Accounting minor (2017-2018). The latter new major and the remaining majors all take the same core, as well as 6-8 courses in their major. We also persisted to adjust the Business & Technology curriculum to reflect the additional majors that were added. In the new curriculum, students take the Business Core but presently (2018-2019) also have a much wider selection of business concentrations to specialize in, which include taking classes in one of seven business areas (Finance, Management, Marketing Innovation & Analytics, Information Systems, Economics and Accounting & Analytics, along with the opportunity to minor in various domains, e.g., accounting). |

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

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| 1. Rebranding of Marketing to Marketing Innovation & Analytics to capture the curriculum changes in the marketing major in Spring 2019, based on AOL and other feedback. Drawing on AOL feedback, and additional feedback from students, faculty and the SOB BOD, during Fall 2019, Marketing Innovation & Analytics majors will also be required to take new and existing courses in “Creativity and Innovation”. Additionally, all Marketing majors will be asked to take a marketing related senior design project. The new Marketing Innovation & Analytics curriculum just completed in Spring 2019 includes a data analytics course as well. The current courses include: Marketing Analytics & Research; Marketing Strategy in a Digital World; Social Media and Network Analysis; Virtual and Physical Consumer Behavior; Integrated Marketing Communications; and Data Analytics. |
| 2. Drawing on faculty and student feedback during Spring 2019, freshman entering Fall 2019 will have a re-sequenced course schedule. For example, B.S. in Business, Major: Business & Technology students will take Financial Accounting, Corporate Finance and Principles of Management in the second, third, and forth semester respectively. |
| 3. Drawing on AOL, faculty, student and external feedback, including benchmarking, a course on Auditing has been developed. Auditing is one of the specific areas required to sit for the CPA exam. The course addresses auditing and assurance services with a focus on the audit of financial statements, and the role of these services in business and society and their ethical environment. The course provided knowledge in areas such as, the auditor’s and management’s responsibilities in the conduct of an audit, the practical application of audit procedures, and develops expertise financial reporting in the audit of financial statements. |

**2. Bachelor of Science in 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. 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 75 incoming students in Fall 2019. We also welcomed many internal transfer students from other majors, especially Mathematics and Engineering. The program now has more than 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.

**CURRICULUM CHANGES - Influenced by AOL**

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| 1 | Moved the evaluation of Goal 1 to the Senior Design class, as it was a more appropriate choice to determine their writing and presenting capabilities. |
| 2 | Put through the curriculum committees two new courses to strengthen the probability/statistics spine. The first of which will be offered for the first time in Fall 2019. |
| 3 | Revamped the curriculum to accommodate the two new probability/stochastics courses and improved the flow of the students through the program. |
| 4 | Evaluated existing courses such as QF 430 to see if they should be strengthened to better integrate with market demands. |

**3. Master of Science in Business Intelligence and Analytics (BIA) – Significant Changes Related to AoL Assessment Process**

**Master of Science in BIA**

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

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

Survival in today’s marketplace demands professionals who combine a passion for innovation with the ability to analyze and interpret large volumes of data. The BI&A program provides the analytical and professional skills necessary to take advantage of this data, to move organizations from the traditional mode of intuition-based decision making to fact-based decision making. The curriculum covers the concepts and tools at the forefront of the Big Data revolution: database management, data warehousing, data and text mining, web mining, social network analytics, optimization, risk analytics, and technologies such as Hadoop and data stream analytics. Upon earning their degrees, students will have completed a capstone course requiring them to work on a major project, using real data, under the guidance of an industry mentor. Coursework also emphasizes extensive training in traditional business skills, such as oral and written communications skills, analytical thinking, and ethical reasoning.

Based on feedback from our Industry Advisory Board and a competitive analysis, BI&A faculty have developed seven strategic initiatives designed to improve the quality of the program: (1) Promote Student Centricity, (2) Use MOOCs, (3) Partner with Industry, (4) Facilitate student-industry projects (5) Use Analytics Competitions, (6) Introduce Innovative Pedagogy and (7) Continuously Improve the Curriculum.

Another major strategic thrust of the program is its 3-tier architecture to develop: professional, disciplinary and technical skills.

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

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|  | Goal 1: Our students will communicate effectively in writing and oral presentations. Fall 2018 students performed slightly below average of previous semesters on both the Written and Oral objectives. This maybe because of the higher percentage international students. All students will be strongly encouraged to attend the free tutorials provided by the Institute Writing Center.  |
|  | Goal 2: Students will demonstrate competency in interacting effectively in teams. The content and structure of the course are continuously updated to improve the students’ experience and develop their ability to interact effectively as a part of a team. For this past year, we introduced improved entry surveys to collect information on students and design more balanced and cohesive teams, weekly meetings with teams, an improved process for selecting team projects, and an improved process that allows us to assist students who want to move to a different team during the semester.  |
|  | Goal 3: Students understand and can apply a broad range of business analytic techniques including optimization, conceptual data modeling, data warehousing and data mining. As a result of the assessment process we’ve made three significant changes to evaluate whether students understand and can apply the range of business analytic techniques covered in the curriculum. First, we standardized the testing process to aid students in taking the test and better understanding what they know or don’t know about a topic. Second, We have them take the test at the beginning of the practicum, so individual guidance can be given to them during the semester. Finally, students have an opportunity to apply their skills by working on an industry project or as part of a competition.  |
|  | Goal 4: Students can find and deploy business solutions based on analyses of large and heterogeneous business sets. Student performance on this goal was mixed (see Learning Goal 4 Booklet.) To improve this situation, major curriculum changes have been introduced: Starting in the fall 2018 (1) BIA 678: Big Data Technologies will be a required core course and (2) MIS 630, the required database course, has been redesigned to cover new big data technologies such as MongoDB. |

**CURRICULUM CHANGES - Influenced by AoL**

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| 1 | PROGRESS ON BI&A STRATEGIC INITIATIVES(1) Promote Student Centricity, (2) Use MOOCs, (3) Partner with Industry, (4) Encourage student (5) Use Analytics Competitions, (6) Introduce Innovative Pedagogy and (7) Continuously Improve the Curriculum. (1) Student Centricity: All 1st & 2nd semester students are now partnered with an industry mentor (2) Use MOOCs: We use MOOCs (e.g., LYNDA) as prerequisites, for remedial purposes, and to amplify the material we cover in our courses.(3) Partner with Companies: Two new advisors were added to our board last year. We developed a large number of contacts through the 2 poster events we held last year.(4) Student-industry projects. Standard MOUs have been approved and industry consulting projects have been introduced for students in BIA 678 Capstone and BIA674 Marketing Analytics. Over 50 students were involved in team projects with L’Oreal, (5) Use Analytics Competitions. Students are encouraged to enter competitions in several classes, especially BIA 658 Social Network Analytics and BIA 672. One BIA student participated in a team that earned 7th place in a Kaggle competition. Two teams shared 1st place in a competition run by UBS in fall 2018.(6) Introduce Innovative Pedagogy (7) Continuously Improve the Curriculum. With support from IBM we taught a new course, BIA 810 Blockchain Fundamentals and Applications in spring 2019. A new “Applied AI” concentration and certificate has been designed for introduction in 2019-20Professional Skills. Over 30 student club events were held in 2018-19 including job skills workshops, poster events, and talks by industry professionals.Technical Competency. In 2018-19 a free 1-day Tableau “bootcamp” was added to the existing sequence on Python, R, SAS, and Hadoop/Spark. |

**4. Master of Science in Enterprise Project Management (EPM) – Significant Changes Related to AoL Assessment Process**

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

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

**INTRODUCTION AND OVERVIEW OF EPM PROGRAM**

1. Students can communicate effectively in written and oral presentations.

2. Students can interact effectively in teams.

3. Students can develop a plan that shows how an enterprise project creates value for its stakeholders.

4. Students understand how to influence and lead enterprise projects.

**CURRICULUM CHANGES - Influenced by AoL**

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| 1 | FIN615 added new teaching materials, such as transparencies, handouts, exam preparation questions, and developed exams. |
| 2 | MGT610 introduced weekly quizzes and discussion board for classroom course. Added new case for AHP exercises (learning goal 1 and 4). |
| 3 | MGT612 updated experiential activities that draw on, e.g., influencing without authority as well as contingency leadership (learning goal 1 and 2).  |
| 4 | MGT641 added conducting a public speaking exercise in the class prior to students giving their main presentation (learning goal 1). |
| 5 | MGT699 updated required reading list. Changed older Harvard cases to more recent ones.  |

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

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| 1 | The School of Business launched a mentor program this fall matching first year students with alumni. The mentor program aims to provide individualized professional development and career support for students within their academic and professional communities, increase meaningful engagement for alumni and current students, and create a network of connections to help bridge the gap between graduation and placement.  |
| 2 | Surveyed continuing students in fall 2019 to determine career readiness and areas to create experiential learning opportunities. |
| 3 | Hosted monthly PMINJ remote satellite meetings and encouraged students to attend to gain industry experience. |
| 4 | Sponsored one-on-one resume reviews through the Writing Center to help students be prepared for the job market upon graduation.  |
| 5 | Increased marketing campaigns using alumni to show the value of a Stevens degree. |

**5. Master of Business Administration (MBA)- Significant Changes Related to AoL Assessment Process**

**Masters of Business Administration (MBA)**

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

**INTRODUCTION AND OVERVIEW OF MBA**

1. Students can communicate effectively in written and oral presentations.

2. Students can interact effectively in teams

3. Students will understand how a firm uses technology for competitive advantage in satisfying its business strategy.

4. Students will have the ability to engage in analytic problem-solving.

 **CURRICULUM CHANGES - Influenced by AOL**

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| 1 | FIN600 added an oral presentation to the Critical Thinking assignments, in addition to the written report (learning goal 1).  |
| 2 | MGT612 updated experiential activities that draw on, e.g., influencing without authority as well as contingency leadership (learning goal 1 and 2). |
| 3 | MGT641 added conducting a public speaking exercise in the class prior to students giving their main presentation (learning goal 1).  |
| 4 | MGT663 new cases were added to class presentation and discussion. Newer and emerging technologies were analyzed and discussed in the course (learning goal 3 and 4).  |
| 5 | MGT671 new cases were added to class presentation and discussion. Newer and emerging technologies were analyzed and discussed in the course (learning goal 3 and 4). |
| 6 | MGT610 introduced weekly quizzes and discussion board for classroom course. Added new case for AHP exercises (learning goal 1). |
| 7 | MGT699 updated required reading list. Changed older Harvard cases to more recent ones.  |

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

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| 1 | Complete rollout of new 1-year Analytics MBA for Fall 2018 was delayed. First cohort will begin Fall 2019.  |
| 2 | The School of Business launched a mentor program this fall matching first year students with alumni. The mentor program aims to provide individualized professional development and career support for students within their academic and professional communities, increase meaningful engagement for alumni and current students, and create a network of connections to help bridge the gap between graduation and placement.  |
| 3 | Surveyed continuing students in fall 2019 to determine career readiness and areas to create experiential learning opportunities. |
| 4 | Sponsored one-on-one resume reviews through the Writing Center to help students be prepared for the job market upon graduation.  |
| 5 | Increased marketing campaigns using alumni to show the value of a Stevens degree. |

**6. 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 cross-disciplinary curriculum ensures graduates of the Information Systems master's program know how to assess a company's information systems needs, and are able to manage technology projects to meet the needs of the business and its stakeholders. Students also refine their communication and team skills to ensure they can clearly communicate with both business and technology representatives. The program includes three electives that allow students to explore an area of interest in greater depth. Alternately, students seeking more structure can use those elective courses to pursue one of the pre-defined concentrations in Business Intelligence and Analytics, Business Process Management and Service Innovation, Project Management, Cybersecurity Risk Management, and Software Engineering.

The MSIS program was examined as part of an external review. The external review process began with the creation of a self-study report, compiled by the program director and faculty, that described the current program and anticipated changes. Subsequently an external review team was established by inviting participation from faculty members of three (3) peer/competitor institutions. The external review team reviewed the self-study materials and conducted interviews of faculty and program administration on-campus. The review resulted in numerous potential points of improvement and update that are under consideration by the faculty and program director.

**CURRICULUM CHANGES - Influenced by AoL**

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| 1 | Added new required course BIA 610 Applied Analytics, to expand the study of analytics by all MSIS student. |
| 2 | Removed MGT 689 Organizational Behavior and Design as a required course in response to discussions with program board, students, and faculty. The result is students gained an additional free elective to enable more flexibility in designing individual study plans. |
| 3 | Created new Concentrations in Cybersecurity Risk Management and Software Engineering (in collaboration with the School of Systems and Enterprise) based on input from industry and program board. |

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

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| 1 | Established process to contact all admitted students before arrival on campus to improve overall transition experience including study plan development. |
| 2 | Formed MSIS Program Advisory Board that includes IS/IT leaders from local organizations. Many board members are former MSIS students. |
| 3 | Began advising MSIS students to participate in technical “boot camp” programs offered by the School of Business, to improve technical, hands-on skills. This approach was suggested based on feedback from industry, board, and recent graduates. |

**7. Master of Science in 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.**

**INTRODUCTION AND OVERVIEW OF MS MANAGEMENT**

1. Students can communicate effectively in written and oral presentations.

2. Students understand effective interaction in teams

3. Students are able to utilize technology for competitive advantage in satisfying a firm's business strategy.

4. Students are able to engage in analytic problem-solving.

**CURRICULUM CHANGES - Influenced by AoL**

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| --- | --- |
| 1 | FIN615 added new teaching materials, such as transparencies, handouts, exam preparation questions, and developed exams. |
| 2 | MGT641 added conducting a public speaking exercise in the class prior to students giving their main presentation (learning goal 1). |
| 3 | MGT671 new cases were added to class presentation and discussion. Newer and emerging technologies were analyzed and discussed in the course (learning goal 3 and 4). |
| 4 | MGT689 included min-surveys that gauge participation and continuous learning, as a way to adapt to an increasingly larger class size.  |
| 5 | MGT699 updated required reading list. Changed older Harvard cases to more recent ones.  |

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

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| 1 | The School of Business launched a mentor program this fall matching first year students with alumni. The mentor program aims to provide individualized professional development and career support for students within their academic and professional communities, increase meaningful engagement for alumni and current students, and create a network of connections to help bridge the gap between graduation and placement.  |
| 2 | Surveyed continuing students in fall 2019 to determine career readiness and areas to create experiential learning opportunities. |
| 3 | Sponsored one-on-one resume reviews through the Writing Center to help students be prepared for the job market upon graduation.  |
| 4 |  Increased marketing campaigns using alumni to show the value of a Stevens degree. |

**8. Master of Science in 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**

**INTRODUCTION AND OVERVIEW OF MSTM/EMBA**

1. Communicate effectively in both written and oral presentations.

2. Inspire, motivate and lead teams and groups of technical professional and knowledge workers for maximum utilization of the organization’s human capital and continuous growth of its employees.

3. Develop, articulate, and put into practice technology strategies aligned with corporate mission, business strategy and ethical principles.

4. Identify, assess, launch, and lead organizational strategic initiatives in a technology-based environment for the creation of new businesses and sustaining existing businesses. [Koen]

**CURRICULUM CHANGES - Influenced by AOL**

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| 1 | EMT624MJ added an oral presentation to the Critical Thinking assignments, in addition to the written report (learning goal 1).  |
| 2 | EMT635MJ added more material and examples about the binomial distribution and the use of Bayesian methods to facilitate better decision making. |
| 3 | EMT624MJ brought invited an executive communications consultant to class to offer feedback on student’s presentations (learning goal 1).  |
| 4 | EMT695MJ updated readings, enhanced process for discussing readings each class, and surveyed students from past years to learn how they have used the material since taking the course which will lead to enhancements for fall 2019 |

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

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| 1 | The School of Business launched a mentor program this fall matching first year students with alumni. The mentor program aims to provide individualized professional development and career support for students within their academic and professional communities, increase meaningful engagement for alumni and current students, and create a network of connections to help bridge the gap between graduation and placement.  |
| 2 | Surveyed continuing students in fall 2019 to determine career readiness and areas to create experiential learning opportunities. |
| 3 | Moved lunch into one classroom to encourage relationship building across different cohorts.  |
| 4 | Added networking opportunities for students. One in the fall for current students only. Another event in the spring semester for current students and alumni.  |
| 5 | Sponsored one-on-one resume reviews through the Writing Center to help students be prepared for the job market upon graduation.  |
| 6 | New marketing campaign through Ivy Ex has helped reshape the way we market the program to prospective students and better determine the value of the Stevens degree.  |

**9. Master of Science Finance (MFIN) - Significant Changes Related to AoL Assessment Process**

**Masters of Science in Finance (MFIN)**

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

**INTRODUCTION AND OVERVIEW OF MS FINANCE**

The Stevens Master of Science in Finance (MFIN) is a 36-credit degree program designed for experienced professionals or new students interested in leading positions in the finance departments of major corporations or seek to advance their careers in the financial sector. The program consists of core courses covering fundamental topics in finance and economics, the management of financial technologies, and allows students to specialize in topics such as regulatory and market environments, financial project management, investment banking and valuation, or financial analytics and risk. Graduates complete the program having been trained to apply quantitative thinking to the challenges of managing finance, and develop specialties in areas of greatest interest to their career tracks.

The Stevens Finance graduate degree program has been accepted into the CFA Institute University Recognition Program. Universities with this recognition incorporate at least 70 percent of the CFA Candidate Body of Knowledge (CBOK), making them well positioned to sit for the CFA exams. The financial analytics and risk specialization is aligned with the Financial Risk Manager exam of the Global Association of Risk Professionals (GARP).

The four AoL goals have been evaluated for second time on the year 2017-18. This process has helped the faculty to design instruments of evaluation that integrates communication and organizational aspects besides the traditional academic performance. Additionally, the courses have been modified emphasizing communicational abilities and practical skills related to trading and quantitative analysis. This year a new concentration on financial planning has been approved. This concentration will train students in the fundamental concepts and methods used by professional financial planners according to the Certified Financial Planner (CFP) Board.

A Business Advisory Board for the financial programs, including MFIN, was created in the Fall of 2018. The Board has met four times in the 2018-19 academic year and has discussed improvements to the curriculum, new faculty hiring, and student placement, among other topics.

**CURRICULUM CHANGES - Influenced by AoL**

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| 1 | Faculty is exploring new exercises to improve the communication abilities of our students, and their capacity to work in groups. |
| 2 | Evaluate the inclusion of a trading simulator software for the FIN 628 Derivatives course. Introduced case study discussions and guest lectures from the industry for the course. |
| 3 | Launched a new concentration and certificate on Financial Planning, which will be directed to professional financial planners or students that want to concentrate in this area. |
| 4 | Created a Business Advisory Board for the financial programs, including MFIN, which has been discussing improvements to the curriculum, new faculty hiring, student placement, etc. |
| 5 | Introduced the new options of a 6-credit Master’s thesis or a 3-credit applied project as a supplement to the elective course offerings in the curriculum. |
| 6 | Prepared a curriculum for undergraduates wishing to complete the Master’s in Finance under the Accelerated Master’s Program (AMP), which will include two new courses to be developed. |

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

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| The Program Academic Committee (PAC) met with the economics group in the Fall of 2018 and reviewed the direction of the finance group at Stevens in terms of teaching, research and collaboration with industry. |
| The PAC approved that-research oriented students may choose to prepare a Master’s thesis (6 credits) or develop an applied project (3 research credits) and select the rest of the elective courses according to the research plan approved by the student’s advisor. |
| The Committee prepared a curriculum for undergraduate students with a strong training in finance or for Stevens QF or Finance majors that would like to complete the Master’s in Finance under the Accelerated Master’s Program (AMP) based upon a review of the QF/Finance major programs. This curriculum requires the preparation of two new courses: Introduction to Asset Pricing and Machine Learning in Finance. |

**10. Master of Science Financial Engineering (FE) - Significant Changes Related to AoL Assessment Process**

**Masters of Science in Financial Engineering (FE)**

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

**INTRODUCTION AND OVERVIEW OF MS FINANCIAL ENGINEERING**

The master's in financial engineering combines the desired attributes of mathematical modeling, statistical analysis, finance, economics, computer programming skills and systems thinking to solve the financial challenges at the enterprise and the systemic level. The program provides students a fundamental understanding of domains applied in the quantification of financial systems and knowledge that is intrinsic in the structuring of financial products and markets.

**CURRICULUM CHANGES - Influenced by AOL**

|  |  |
| --- | --- |
| 1 |  Further improved on the evaluation of Goal 1 in FE800 to make it more beneficial for the students, as well as more easily assessed. |
| 2 |  Introduced the Ethics Quiz into FE800 as a way to bring in the ethics requirements for our students. This will be moved to FE610 for the next year, as to expose the students to ethics at an earlier date. |

**11. Master of Science Financial Analytics (FA) - Significant Changes Related to AoL Assessment Process**

**Masters of Science in Financial Analytics (FA)**

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

**INTRODUCTION AND OVERVIEW OF MS FINANCIAL ANALYTICS**

The masters students who are pursuing a masters in financial analytics are introduced to a variety of disciplines. In addition to the core courses in statistics and data science, students are also expected to take courses in data visualization, time series, machine learning, big data, and optimization.

**CURRICULUM CHANGES - Influenced by AoL**

|  |  |
| --- | --- |
| 1 |  Began evaluating the Financial Analytics masters students as its own entity |
| 2 |  Further improved on the evaluation of Goal 1 in FE800 to make it more beneficial for the students, as well as more easily assessed. |
| 3 |  Introduced the Ethics Quiz into FE800 as a way to bring in the ethics requirements for our students. This will be moved to FE582 for the next year, as to expose the students to ethics at an earlier date. |

**12. 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. in Business Administration 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 program includes 3 areas of research: Innovation & Entrepreneurship, Information Systems & Analytics and Finance. The curriculum was completely revised in 2016-2017. The new courses were approved by the Institute GCC and all courses were at least offered once by the academic year 2018-2019.

Assessment data that could be linked to the program changes is not available at this point in time as the students in the program have not fully finished the whole cycle since the changes were made in 2016. The first AoL goal (PhD-1: Ph.D. graduates can effectively communicate research in oral presentations.) was assessed multiple times and the students achieve satisfactory results. The second AoL goal (PhD-2.2: Students will defend at or about the end of the fourth year of fulltime study) was assessed multiple times but the results are not satisfactory. One action the committee took was to define a policy that regulates the functions of student mentors and advisors. No changes to the AoL process were made for the 2018-2019 period.

**CURRICULUM CHANGES - Influenced by AoL**

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| --- | --- |
| 1 | A teaching policy for Ph.D. students was approved in 2018/19. |
| 2 | A policy for Ph.D. advising roles was developed and approved in 2018/19. It regulates the role of the first year mentor who advises a Ph.D. student in the first year of their doctoral studies. Ph.D. students will then select their doctoral advisor within the first year of their studies. It is expected that this will allow students to find the best advisor for their areas of interest leading to an acceleration of their academic outputs and reducing the total study time. |

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

|  |  |
| --- | --- |
| 1 | MA701 Statistical Inferences course that is taught by professors of the mathematics department to all the students enrolled in the BA Ph.D. program. It will be also offered for students in the  |
| 2 | Introduction of Ph.D. Research Workshops. The first PhD workshop for the BA Ph.D. program was organized in the spring semester 2019 on every other Monday with two student presenters per session. |

**13. Doctor of Philosophy in Financial Engineering - Significant Changes Related to AoL Assessment Process**

**Doctor of Philosophy in Financial Engineering**

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

**INTRODUCTION AND OVERVIEW OF Ph.D. DEGREE in Financial Engineering**

The Ph.D. in Financial Engineering program at the School of Business at Stevens is predominantly a fulltime program preparing the students for a successful academic and industry research career. This degree was introduced in 2009 in the School of Systems and Enterprises and eventually moved to the School of Business in 2017. It is a 54 credit degree. The program includes 5 areas of research: Algorithmic Trading, Mathematical Finance, Risk Management, Portfolio Management, Financial Analytics and Innovation. New research initiatives were implemented and new policies were defined in 2018-2019 academic year.

The three AoL goals have been evaluated for first time in Fall 2018. This process has helped the Ph.D. students to focus their research publication and communication skills. More students are able to publish papers earlier during their study, and the overall highly ranked journal publications by students have also increased. Additionally, the new policies have been implemented emphasizing on building solid foundation and improving students’ teaching capabilities. The major AoL changes were discussed and finalized in the spring of 2018. The AoL goals (PhD-1: Ph.D. graduates can effectively communicate research in oral presentations PhD-2: Ph.D. graduates will have sufficiently mastered the core knowledge and tools needed to conduct original research in a timely manner; PhD-3: Ph.D. graduates are able to effectively deliver academic courses in a university environment.) were assessed in the 2018 fall semester with the students who started in 2017 fall and again accessed in 2019 spring semester. No major change to the AoL process was made for the 2018-2019 period.

**CURRICULUM CHANGES - Influenced by AoL**

|  |  |
| --- | --- |
| 1 | The changed preliminary examination policy was implemented the first time in 2018 fall. |
| 2 | The conference fellowship policy was implemented the first time in 2018 fall. |
| 3 | A research publication policy for Ph.D. students was completed in 2018 fall and 2019 spring. |
| 4 | The statistics course MA701 is to be added to the core required Ph.D. courses. This change was discussed by the committee and will be introduced in 2019-2020 academic year. |

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

|  |  |
| --- | --- |
| 1 | Most notably, the move of the FE program from the SSE to the SOB. Students are taking finance and economics courses as their electives.  |
| 2 | Added more PhD student advisors from the Information Systems Analytics, and Finance programs. As the result, the FE Ph.D. committee has expanded, and more students are co-advised by finance and business analytics faculty in research. |