Stevens Institute of Technology

School of Business

**AACSB**

**ASSURANCE OF LEARNING PLAN**

**Bachelors of Science in Quantitative Finance**

 **(QF)**

June, 2019

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1. INTRODUCTION: QF ASSURANCE OF LEARNING PLAN

|  |  |  |
| --- | --- | --- |
|  | **Credits** | **Courses** |
| **QF Degree Requirements** | 136 | 42 |
|  |  |  |

**School of Business and QF Vision Statements**

**School of Business Vision**

We will be leaders in the creation and dissemination of knowledge that drives successful innovation in products, processes and businesses.

**Bachelor of Science in Quantitative Finance** **(QF) Vision**

We will be recognized as a worldwide leader in undergraduate education for quantitative and technologically advanced applications in the field of finance – what we will refer to as the QF domain.

**QF Learning Goals**

The Learning Goals for the QF program are listed in Table 1.

**Table 1: BS in Quantitative Finance Learning Goals**

|  |
| --- |
| **BS in Quantitative Finance Learning Goals** |
| QF - 1: Students can communicate effectively in written and oral presentations.  |
| QF - 2: Students can interact effectively in teams |
| QF - 3: Students will achieve mastery of the foundational skill set in computer science and quantitative methods required for the QF domain. (Archived)  |
| QF - 4: Students are able to develop and use financial models and technical systems from a perspective of a broad critical understanding of the financial system. |

2. QF ASSURANCE OF LEARNING ASSESSMENT PLAN

**Table 2: QF ASSURANCE OF LEARNING ASSESSMENT PLAN**

| **LEARNING GOAL** | **Where and when measured?** | **How measured?** | **Criterion** |
| --- | --- | --- | --- |
| 1. Students will communicate effectively in oral and written presentations.

Responsibility: Ghoddusi, Stein | Assessed in the fall semester in QF 401.  | Student presentations are presented regularly and competitively, including on capstone occasions to cross-faculty panels; student memoranda are assessed for writing skills. Feedback is provided to each individual student. In addition to regular assignments, a formal assessments of written communication skills will take place in QF 401Oral presentation skills will be formally assessed by faculty and expert panels in QF401 | For both the oral and written test, 80% of students must receive a grade of “A” or “B”. Students receiving “C” or “D” grades are given remedial training. |
| 1. Students will be able to interact effectively in teams

Responsibility: Aronson  | Assessed in the fall semester in required QF spine courses QF 200 | Team performance is evaluated through competitive presentations, and through cross-assessments by students, and by outside evaluators  | Students must show a demonstrated ability to work in teams, with varying degrees of preparation, on problems of varying levels of structure and complexity. |
| 1. Students will achieve mastery of the foundational skill set in computer science and quantitative methods required for the QF domain.

(Archived)  | Measurement will take the form of a series of Certifications for various quantitative and programming skills, which will be administered in specialized 1-credit Lab Sections QF 103 | Certification exams will be administered for selected skill-sets, including:* Basic Financial databases, such as Bloomberg, Thomson-Reuters, CRSP/Compustat, etc.
 | 85% of students get a grade of GOOD or better as measured by the rubric for this learning goal |
| 1. Students are able to develop and use financial models and technical systems

Responsibility: German Creamer | Measured in the Fall Semester in QF 301 | Project assignments in QF 301, involving the construction of financial models using financial time series data | 85% of students get a grade of GOOD or better as measured by the rubric for this learning goal |

3. QF CURRICULUM ALIGNMENT MAP

**Table 3: QF Curriculum Alignment Map**

| **Goals/****Required QF Courses** | **1: Students can communicate effectively in oral and written presentations.**  | **2: Students can interact effectively in teams** | **3: Students will achieve mastery of the foundational skill set in computer science and quantitative methods required for the QF domain.** (Archived)  | **4. Students are able to develop and use financial models and technical systems from a perspective of a broad critical understanding of the financial system.** |
| --- | --- | --- | --- | --- |
| QF 101, QF 102 | Formal team presentations are required several times in the course of the semester, addressing unstructured and structured group problems in finance. | Team performances are assessed competitively, against rubrics appropriate to each problem. |  | Wall Street Journal, Financial Times and other sources, applied in unstructured or semi-structured problem solving to develop breadth of critical thinking |
| QF 103 |  |  | Basic financial databases, such as Bloomberg, Thomson-Reuters | Simple financial portfolio models constructed using the basic financial tools described at left |
| QF 104Adv Fin tools & Tech |  |  | Learn more advanced financial tools |  |
| QF 200 |  |  | Econometrics, extension of basic probability and statistics concepts applied to financial problems | Application of Quantitative Methods and Computer Science skill sets for the development of basic and intermediate financial modeling techniques |
| QF 202 |  |  | Introduction to time series concepts with applications to finance | Application of Quantitative Methods and Computer Science skill sets for the development of basic and intermediate financial modeling techniques |
| QF 203 |  |  | Programming to create appropriate customized databases using market data from the sources described above, suitable for driving financial models designed by students; languages including SAS, R, Matlab | Simple algorithmic trading models and other financial models using customized databases |
| QF 221 |  |  | Statistical models, hypothesis testing | Financial applications, Decision making |
| QF 301, 302 |  |  | Basic financial databases, such as Bloomberg, Thomson-Reuters | Application of Quantitative Methods and Computer Science skill sets for the development of advanced time series and micro-structure financial modeling techniques |
| QF 303 |  |  | Programming to create more advanced models based on customized data-feeds and cross-referenced databases drawing from multiple data sources, including high-frequency financial data | High frequency algorithmic models, trading engines, data-feeds, and other advanced components of modern financial systems |
| QF 343 |  |  | Stochastic Calculus skills, martingales, Markov, no-arbitrage pricing, risk-neutral measures | Black-Scholes-Merton, Vasicek, CIR, Hull-White, etc. |
| QF 365 |  |  | Algorithm development skill foundation, C programming |  |
| QF 401, QF 402 | Student teams must present complex solutions and designs for a defined financial model or technical system, in a graded series of presentations, culminating in a capstone presentation to a faculty/expert panel.  | Team performance is evaluated as an independent component of the Final design project, in a graded series of presentations, culminating in a capstone presentation to a faculty/expert panel.  | Programming to create appropriate customized databases using market data from the sources described above, suitable for driving financial models designed by students; languages including SAS, R, Matlab | Comprehensive Application of Quantitative Methods and Computer Science skill sets for the development of professional-grade financial modeling and technical systems applications |
| QF 427/428Student managed investmentfund |  | Team performance is evaluated |  | All tools and analytics learned throughout the curriculum are used as the teams invest real money in the stock market. |
| QF 430 |  |  |  | Modeling of derivatives and related financial instruments and trading strategies |
| QF 435 |  |  | Hedging risk, determining risk in a model, VaR, CVaR | Risk Models |
| QF 465 |  |  | C++ programming skill foundation |  |
| MA 121-124, 221 |  |  | Calculus 1, 2 and 3 skill foundation |  |
| MA 230, MA 450 |  |  | Multivariate calculus and optimization techniques for financial applications | Development and use of optimization as a modeling technique |
| CS 115 or CS 181 |  |  | Computer science foundation, elements of programming, JAVA |  |
| CS 284 or CS 182 |  |  | Data structures skill foundation |  |

**Ethics Thread**

The QF Program also takes great effort to address the importance of Business Ethics. The following table shows the courses where ethics is explicitly addressed.

|  |  |
| --- | --- |
| **Goals/** | Students are aware of social responsibilities in a business environment and can reason about ethical issues. |
| QF 101, QF 102 | General overview of ethical issues associated with modern financial markets, including issues involving insider information, financial disclosure, and accounting standards |
| QF 103 | Integrity of data sources, critical thinking regarding the use of nonstandard data |
| QF 104Adv Fin tools & Tech | Transparency of financial modeling  |
| QF 201, 202 |  Proper understanding of statistical methods and issues associated with transparent presentation of statistical findings  |
| QF 203 | Transparency of financial modeling  |
| QF 301, 302 | Ethical issues associated with management of order books, market microstructure, and market making principles (e.g., dealing with concerns about front-running) |
| QF 303 | Transparency of financial modeling  |
| QF 435 | General treatment of risk, focusing on appropriate ethical questions involved in auditing financial transactions and models |
| QF 401, QF 402 | Ethics of research — including questions of proper attribution, copyright concerns, the use of confidential data sets, transparency of results and reproducibility  |
| QF 427/428Student managed investmentfund | Ethical issues associated with a proper understanding of the Fiduciary role of asset managers; also ethics of financial reporting, audibility, transparency |
| QF 465 | Ethical aspects of transparent documentation of coding and models |

**Global Thread**

Another thread that runs through the QF Program are global considerations. Following is a chart that maps our courses to global coverage using the legend below.

Legend

 – Entirely Global Content

 – Significant parts are global

 – Some global content

|  |  |  |
| --- | --- | --- |
| **Course** | **Legend** | **Notes** |
| QF 101, QF 102 |  |  |
| QF 103 |  |  |
| QF 104Adv Fin tools & Tech |  |  |
| QF 201, 202 |  |  |
| QF 203 |  |  |
| QF 301, 302 |  |  |
| QF 303 |  |  |
| QF 435 |  |  |
| QF 401, QF 402 |  |  |
| QF 427/428Student managed investmentfund |  |  |
| QF 465 |  |  |

4. QF LEARNING GOALS, OBJECTIVES AND RUBRICS

 **Table 4: QF Learning Goals, Objectives and Rubrics**

Note: Goals 1 and 2 are common to all School of Business degree programs.

|  |  |
| --- | --- |
| **QF - 1** | **Learning Goal, Objectives and Traits** |
| **GOAL** | Our students will communicate effectively in writing and oral presentations. |
| **Learning Objectives** |  |
| **Objective 1:** | *Students will be able to write effectively* |
| **Traits** |   |
| Trait 1: | Logical flow |
| Trait 2: | Grammar and sentence structure |
| Trait 3: | Spelling and word choice |
| Trait 4: | Development of ideas |
| **Objective 2:** | *Students will be able to deliver presentations effectively* |
| **Traits** |   |
| Trait 1: | Organization and logic |
| Trait 2: | Voice and body language |
| Trait 3: | Use of slides to enhance communication |
| Trait 4: | Ability to answer questions |
| Trait 5: | Content |

**Table 4: QF Learning Goals, Objectives and Rubrics (continued)**

|  |
| --- |
|  **QF GOAL - 1: RUBRIC 1**  |
| **GOAL** | **Our students will communicate effectively in writing and oral presentations.** |
| **Objective 1** | *Students will be able to write effectively* |   |   |   |
|   | **Trait** | **Poor** | **Good** | **Excellent** | **Score** |
|   | **Value** | **0** | **5** | **10** |  |
| Trait 1: | Logical flow | Unclear introduction or conclusion. Does not use a sequence of material to lead reader through the paper. Draws illogical conclusions | Develops ideas through effective use of paragraphs, transitions, opening & concluding statements. Generally well structured to suggest connection between sub-topics. | Maintains clear focus, uses structure to build the paper's conclusions. Presents analysis using sequence of ideas, clarity of flow and continuous voice or point of view. |   |
| Trait 2: | Grammar and sentence structure | Frequently uses inappropriate grammar and incomplete or poorly structured sentences which interfere with comprehension. | Generally complies with standard English and grammar and sentence usage. | Sophisticated use of English language, using varied sentence structured, phrasing and cadence. Grammar is error-free |   |
| Trait 3: | Spelling and word choice | Frequent misspellings. Poor or limited choice of words for expression ideas. | Has proofread or checked spelling, and uses vocabulary correctly. Minor errors. | Demonstrates good use of words to support written expression of topic. Spelling is error-free. |   |
| Trait 4: | Development of ideas | Many unsupported statements offered. Uses flawed or unclear reasoning. | Most statements supported, ideas explained with examples and written with sufficient explanation. | Shows thoughtful reasoning and explores alternatives. Uses existing, supported ideas to develop well-formed, readable output. |   |

**Table 4: QF Learning Goals, Objectives and Rubrics (continued)**

|  |
| --- |
| **GOAL - 1: RUBRIC 2**   |
| **GOAL** | **QF - 1: Our students will communicate effectively in written and oral presentations.** |
| **Objective 2** | *Students can deliver presentations effectively.* |   |
|   | **Trait** | **Poor** | **Good** | **Excellent** | **Score** |
|   | **Value** | **0** | **5** | **10** |  |
| Trait 1: | Organization and logic | Fails to introduce topic, no evidence of or poor logical flow of topic, does not manage time. | Prepares listeners for sequence and flow of topic. Loses place occasionally. Maintains pace, without need to rush. | Engages listeners with overview, guides listeners through connections between sections, uses time to good effect. |   |
| Trait 2: | Voice and body language | Cannot be heard well due to volume, mumbling, speed, rote delivery, heavily accented English. Turns away from audience or uses distracting gestures, such as scratching or tugging clothing. | Clear delivery with well-modulated voice and self-carriage. | Exemplary delivery, using voice and gestures as part of medium. Uses vocal and physical resources to aid in communicating topic. |   |
| Trait 3: | Use of slides to enhance communications | Misspelled, too busy, too many slides for allotted time, poor use of graphics like charts. | Readable, containing reasonable amount of material per slide, good use of graphics or illustrations | Well written and designed, used as support to verbal content presentation. |   |
| Trait 4: | Ability to answer questions | Does not answer questions that are asked | Responds to questions well and provides sufficient response | Responds convincingly and addresses all aspects of question. Knows own material thoroughly. |   |
| Trait 5: | Content | Does not satisfy assignment requirements. Misuses theory or selects poor examples. | Provides good analysis of subject, satisfying intent of assignment and demonstrating knowledge. | Shows evidence of strong research and highly competent use of analyses to reach conclusions and recommendations. |   |
|  **Criterion: Does not meet expectations: 0 – 20; Meets: 21-40 ; Exceeds: 41-50** |

**Table 4: QF Learning Goals, Objectives And Rubrics (continued)**

# . LEARNING OBJECTIVES AND TRAITS

|  |  |
| --- | --- |
| **QF - 2** | **Learning Goal, Objectives and Traits** |
| **GOAL** | Our students will interact effectively in teams. |
| **Learning Objectives** |
| **Objective 1:** *Students will be able to facilitate task accomplishment within the context of project teams.* |
| **Traits** |   |
| Trait 1: | Anticipates problems and develops contingency plans |
| Trait 2: | Recognizes interrelationships among problems and issues |
| Trait 3: | Suggests new approaches to solving problems |
| Trait 4: | Organizes information into meaningful categories |
| Trait 5: | Helps others to draw conclusions from the facts |
| Trait 6: | Defines task priorities for work sessions and or overall projects |
| Trait 7: | Ensures that goals are understood by all |
| Trait 8: | Clarifies roles and responsibilities of others |
| Trait 9: | Reviews progress throughout work sessions/life of a project |
| Trait 10: | Summarizes the team's position on issues |
| **Objective 2:** *Students will be able to facilitate relationship building within the context of project teams.* |
| **Traits** |   |
| Trait 1: | Conveys interest in what others are saying |
| Trait 2: | Encourages ideas and opinions even when they differ from his/her own |
| Trait 3: | Works towards solutions and compromises that are acceptable to all involved |
| Trait 4: | Shares credit for success with others |
| Trait 5: | Cooperates with others |
| Trait 6: | Encourages participation among all participants |
| Trait 7: | Shares information with others |
| Trait 8: | Reinforces the contributions of others |
| Trait 9: | Involves others in decisions that affect them |
| Trait 10: | Encourages others to express their views even when they are contrary to his/her own |

# 3. RUBRICS

**Objective 1:** *Students will be able to facilitate task accomplishment within the context of project teams*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | **Trait** | **Poor** | **Good** | **Excellent** |
|   | **Value** | **0** | **5** | **10** |
| Trait 1: | Anticipates problems and develops contingency plans | Fails to suggest a direction and does not clarify responsibilities  | Suggests some form of direction for the team | Identifies ways to proceed or alternatives to pursue and clarifies roles and objectives |
| Trait 2: | Recognizes interrelationships among problems and issues | Fails to request information from the team | Makes an effort to request information from the team | Asks questions, analyzes knowledge gaps, requests opinions, beliefs and perspectives |
| Trait 3: | Suggests new approaches to solving problems | Fails to provide information needed | Provides some necessary information | Provides data, offers factors, and judgments and highlights conclusions  |
| Trait4 | Organizes information into meaningful categories | Does not expand on others ideas | Makes an effort to build on others' suggestions | Builds on ideas expressed by others; provides examples and illustrations |
| Trait5 | Helps others to draw conclusions from the facts | Fails to suggest to the team to stay focused on the team's task | Makes an effort to keep members focused on the task | Urges team members to stay on task and to achieve team goals |
| Trait6 | Defines task priorities for work sessions and or overall projects | Fails to monitor progress | Tries to check progress | Checks on progress, helps maintain accountability of results |
| Trait7 | Ensures that goals are understood by all | Provides no analysis of team processes | Makes an effort to analyze team processes | Analyzes process and procedures used by the team in order to improve efficiency and timeliness.  |
| Trait8 | Clarifies roles and responsibilities of others | Does not ground comments in reality | Makes an attempt to check whether ideas are grounded in reality | Explores whether ideas presented are practical or workable. |
| Trait9 | Reviews progress throughout work sessions/life of a project | Does not reinforce team rules | Tries to reinforce team agreed upon principles | Helps to reinforce team rules, and maintains agreed upon principles |
| Trait10 | Summarizes the team's position on issues | Fails to summarize points and conclusions reached, and does not clarify conclusions reached | Makes an effort to summarize points and clarify conclusions | Combines ideas; sums up points made; Helps members understand the conclusions reached. |

**Objective 2:** *Students will be able to facilitate relationship building within the context of project teams.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | **Trait** | **Poor** | **Good** | **Excellent** |
|   | **Value** | **0** | **5** | **10** |
| Trait 1: | Conveys interest in what others are saying | Fails to praise the contributions of others | Makes an effort to commend the ideas of others  | Praises the ideas of others, shows friendliness, and points out others' contributions |
| Trait 2: | Encourages ideas and opinions even when they differ from his/her own | Does not attempt to find common ground in conflicting points of view.  | Makes an effort to find common ground in disputes | Mediates differences between others and finds a common ground in disputes  |
| Trait 3: | Works towards solutions and compromises that are acceptable to all involved | Fails to motivate team members | Makes an attempt to energize team members | Motivates others towards greater effort |
| Trait4 | Shares credit for success with others | Fails to challenge disruptive behaviors  | Makes an effort to challenge uproductive behaviors | Challenges unproductive behaviors  |
| Trait5 | Cooperates with others | Fails to encourage solidarity  | Makes an effort to ensure proper team behavior | Encourages agreement and helps smooth interactions |
| Trait6 | Encourages participation among all participants | Fails to express empathy for team members  | Attempts to reflect group feelings | Expresses empathy and support for team members |
| Trait7 | Shares information with others | Reluctant to share information with team members | Occasionally disseminates information  | Regularly Shares information willingly with team members |
| Trait8 | Reinforces the contributions of others | Fails to reinforce other team members’ help  | Makes an effort to provide positive feedback following others’ assistance  | Reinforces the contributions of others |
| Trait9 | Involves others in decisions that affect them | Fails to include team members in decisions that will affect them | Makes an effort to involve other team members in decisions that will affect them | Gets team members involvement in decisions that will affect them |
| Trait10 | Encourages others to express their views even when they are contrary to his/her own | Discourages others’ constructive dissent. | Attempts to encourage others’ constructive disagreement. | Urges others’ to express contrary views. |

**Table 4: QF Learning Goals, Objectives and Rubrics (continued)**

|  |  |
| --- | --- |
| **QF 3:** | **Learning Goal, Objectives and Traits** |
| GOAL | Students will achieve mastery of the foundational skill set in computer science and quantitative methods required for the QF domain. (Archived)  |
| **Objective 1:** | *Students will demonstrate the capability to navigate and use commercial-grade financial information tools, such as Bloomberg, and Thomson-Reuters, Capital IQ, and other similar products (“the standard financial toolkit”).* |
| **Traits** |   |
| Trait 1: | The student becomes thoroughly familiar with the basic and advanced features and functions of the standard financial toolkit. |
| Trait 2: | The student has a good knowledge of the relative merits of each product in the standard financial toolkit, and can demonstrate the ability to select the appropriate product for a given type of task.  |
| Trait 3: | The student can apply this knowledge to construct simple portfolio models based on the standard financial toolkit. |
| **Objective 2:** | *Students will demonstrate the ability to create customized financial models, based on programming data feeds and database structures in a variety of suitable languages, including languages such as Java, Python, SAS, Matlab, R, and C++ (“the standard financial programming languages”).* |
| **Traits** |   |
| Trait 1: | Students will demonstrate the ability to write programs in each of the standard financial programming languages, to construct customized databases using real-time market data and other types of financial data drawn from the standard financial toolkit. |
| Trait 2: | Students will demonstrate the ability to program in C++ for applications involving high frequency financial data. |

**Table 4: QF Learning Goals, Objectives and Rubrics (continued)**

|  |
| --- |
|  **QF LEARNING GOAL - 3: RUBRIC 1** |
| **QF 3** | **Students will achieve mastery of the foundational skill set in computer science and quantitative methods required for the QF domain.** |
| **Objective 1** | *Students will demonstrate the capability to navigate and use commercial-grade financial information tools, such as Bloomberg, and Thomson-Reuters, Capital IQ, and other similar products (“the standard financial toolkit”).* |
|   | **Trait** | **Poor** | **Good** | **Excellent** | **Score** |
|   | **Value** | **0** | **5** | **10** |  |
| Trait 1: | The student becomes thoroughly familiar with the basic and advanced features and functions of the standard financial toolkit. | Poor understanding of the elements and capabilities of the standard financial toolkit. | Ability to effectively navigate and operate each of the elements of the standard financial toolkit. | Fluency in navigating and operating each of the elements of the standard financial toolkit, to a level commensurate with current commercial practice. |   |
| Trait 2: | The student has a good knowledge of the relative merits of each product in the standard financial toolkit, and can demonstrate the ability to select the appropriate product for a given type of task.  | Poor understanding of the relative merits and advantages of the various items in the standard financial toolkit. | Ability to articulate the key advantages and capabilities of each element of the standard financial toolkit. | Fluency and efficiency in selecting the best element of the standard financial toolkit for a given task, and to be able to match different tools to different tasks, to a level commensurate with current commercial practice. |   |
| Trait 3: | The student can apply this knowledge to construct simple portfolio models based on the standard financial toolkit. | Student is not able to construct and debug simple financial models. | Student can construct simple financial models, with efficiency and average skill.  | Students can construct more advanced types of financial models, to a level commensurate with current commercial practice. |   |
|  |  |  |  | The alignment of the service & corporate through strategy will provide competitive advantage. |   |
| **Criterion: Does not meet expectations: 0-15; Meets: 15-20 ; Exceeds: 20-30** |

**Table 4: QF Learning Goals, Objectives and Rubrics (continued)**

|  |
| --- |
| **QF LEARNING GOAL - 3: RUBRIC 2** |
| **QF 3** | **Students will achieve mastery of the foundational skill set in computer science and quantitative methods required for the QF domain.** (Archived)  |
| **Objective 2** | *Students will demonstrate the ability to create customized financial models, based on programming data feeds and database structures in a variety of suitable languages, including languages such as Java, Python, SAS, Matlab, R, and C++ (“the standard financial programming languages”).* |
|   | **Trait** | **Poor** | **Good** | **Excellent** | **Score** |
|   | **Value** | **0** | **5** | **10** |  |
| Trait 1: | Students will demonstrate the ability to write programs in each of the standard financial programming languages, to construct customized databases using real-time market data and other types of financial data drawn from the standard financial toolkit. | Students are unable to effectively program in a majority of the standard programming languages, to create customized financial applications.  | Students are able to effectively program in most or all of the standard programming languages, with at least moderate efficiency. | Students are able to program fluently in all of the standard programming languages, to a level commensurate with current commercial practice. |   |
| Trait 2: | Students will demonstrate the ability to program in C++ for applications involving high frequency financial data. | Students are unable to program in C++ for real-time applications. | Students are able to program with moderate skill in C++, for at least some kinds of high frequency applications.  | Students are fluent in C++ for high frequency applications, to a level commensurate with current commercial practice. |   |

**Table 4: QF Learning Goals, Objectives and Rubrics (continued)**

|  |  |
| --- | --- |
|  **QF 4:** | **Learning Goal - 4: Objectives and Traits** |
| GOAL | Students are able to develop and use financial models and technical systems from a perspective of a broad critical understanding of the financial system. |
| **Objective 1:** | *Students can design an implement financial models that address significant problems or requirements in the current financial industry.* |
| **Traits** |   |
| Trait 1: | Students have the ability to identify and formulate important modeling challenges that are highly relevant to the current financial industry. |
| Trait 2: | Students can design models that effectively address these challenges and produce useful results. |
| Trait 3: | Students can interpret the results in terms of broader policy or strategy implications for the financial industry (including regulatory and compliance perspectives).  |
| **Objective 2:** | *Students develop a strong global understanding of the financial system.* |
| **Traits** |   |
| Trait 1: | Students have a good framework for understanding trends in financial technology.  |
| Trait 2: | Students have a good framework for understanding trends in financial regulation. |
| Trait 3: | Students have a good framework for understanding trends in financial markets. |

**Table 4: QF Learning Goals, Objectives and Rubrics (continued)**

|  |
| --- |
| **QF LEARNING GOAL - 4: RUBRIC 1** |
| **QF 4** | **Students are able to develop and use financial models and technical systems from a perspective of a broad critical understanding of the financial system.** |
| **Objective 1** | *Students can design an implement financial models that address significant problems or requirements in the current financial industry.*  |
|   | **Trait** | **Poor** | **Good** | **Excellent** | **Score** |
|   | **Value** | **0** | **5** | **10** |  |
| Trait 1: | Students have the ability to identify and formulate important modeling challenges that are highly relevant to the current financial industry. | Students are unable to identify, or coherently formulate specifications for, important modeling challenges in finance.  | Students are reasonably good at identifying important financial challenges, and have some ability to specify the appropriate models. | Students can both identify important financial challenges, and can specify coherently the requisite models. |   |
| Trait 2: | Students can design models that effectively address these challenges and produce useful results. | Students are unable to design and complete financial models for pragmatically important problems. | Students show some ability to design useful models for pragmatically important problems. | Students are quite competent at modeling complex and pragmatically important problems in the financial domain. |   |
| Trait 3: | Students can interpret the results in terms of broader policy or strategy implications for the financial industry (including regulatory and compliance perspectives).  |  Students are ineffective at interpreting model results for their practical policy implications. | Students show some facility in providing useful interpretations of modeling results. | Students are able to provide excellent, coherent policy advice based on the results of their models. |   |
| **Criterion: Does not meet expectations: 0 – 15; Meets: 15-20; Exceeds: 20-30** |

**Table 4: QF Learning Goals, Objectives And Rubrics (continued)**

|  |
| --- |
| **QF LEARNING GOAL - 4: RUBRIC 2** |
| **QF 4** | **Students are able to develop and use financial models and technical systems from a perspective of a broad critical understanding of the financial system.** |
| **Objective 2** | *Students develop a strong global and systemic understanding of the financial system.* |
|   | **Trait** | **Poor** | **Good** | **Excellent** | **Score** |
|   | **Value** | **0** | **5** | **10** |  |
| Trait 1: | Students have a good framework for understanding trends in financial technology.  | Students do not demonstrate an understanding of financial technologies and their impacts on the industry. | Students have some facility in interpreting the significance of trends and problems in financial technologies for the financial industry. | Students have an excellent and coherent perspective on the role of technology in finance. |   |
| Trait 2: | Students have a good framework for understanding trends in financial regulation. | Students do not demonstrate an understanding of financial regulation and its impacts on the industry. | Students have some facility in interpreting the significance of trends and problems in financial regulation for the financial industry. | Students have an excellent and coherent perspective on the role of regulation in finance. |   |
| Trait 3: | Students have a good framework for understanding trends in financial markets. | Students do not demonstrate an understanding of the dynamics of financial markets. | Students have some facility in interpreting the significance of trends and problems in financial markets. | Students have an excellent and coherent perspective on the dynamics of financial markets |   |
| **Criterion: Does not meet expectations: 0 – 20; Meets: 21-35; Exceeds:36-50** |

5. RESULTS OF AACSB LEARNING GOAL ASSESSMENTS

The results of the initial learning goal ASSESSMENTs carried out to date are included below.

**Explanation**

Each learning goal has a number of learning objectives and performance on each objective is measured using a rubric that in turn contains a number of desired “traits”. Students are scored individually on each trait.

The grading sheets for each student are used to develop a Summary Results Sheet for each learning goal objective. A selection of these Summaries is included below.

The first table in the Summary Results Sheet for a learning objective and trait gives the counts of students falling in each of the three categories:

- Does not meet expectations

- Meets expectations

- Exceeds expectations

The right-hand column in the table is used to record the average score of the students on each trait. This table provides an indication of the relative performance of students on each trait.

The second table on each sheet provides the counts of students who fall in each of the above three categories for the overall learning objective.

The person doing the ASSESSMENT provides explanatory comments and recommendations on the bottom of the Results Summary Sheet. The recommendations suggest content or pedagogy changes for the next time the course is given.

 **School of Business**

RESULTS OF AACSB LEARNING GOAL ASSESSMENT

**PROGRAM: QF (Bachelor of Science in Quantitative Finance)**

**LEARNING GOAL #1: Our students will be effective communicators.**

**LEARNING OBJECTIVE # 2: Students will be able to deliver presentations effectively.**

**ASSESSMENT DATE: ASSESSOR:**

**NO. OF STUDENTS TESTED: COURSE:**

|  |  |  |
| --- | --- | --- |
|  | **Number of Students** |  |
| **Learning Goal Traits** | **Not Meet Expectat-ions** | **Meet Expectat-ions** | **Exceed Expectat-ions** | **Avg. Grade on Trait** |
| **1: Organization and logic** |  |  |  |  |
| **2: Voice and body language** |  |  |  |  |
| **3: Use of slides to enhance communication**  |  |  |  |  |
| **4: Ability to answer questions**  |  |  |  |  |
| **5: Content**  |  |  |  |  |
| **Average Grade (Maximum 10)** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Total Students by Category**(Based on Average score across all traits) | **Not meet expectations** | **Meet Expectations** | **Exceed Expectations** |
|  |  |  |  |

**COMMENTS:**

**REMEDIAL ACTIONS:**