Program Change Request

Date Submitted: 09/06/17 9:20 pm

Viewing: MS-FINC: Master of Science in Finance

Last approved: 04/06/17 2:55 pm

Last edit: 10/05/17 2:52 pm

Changes proposed by: ssorescu

Catalog Pages Using this Program

Master of Science in Finance

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
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<tbody>
<tr>
<td>Sorin Sorescu</td>
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<td></td>
</tr>
</tbody>
</table>

Academic level: Graduate
Effective Term: 2018-2019
Department: Finance
College: Mays Business School
Program type: Degree
Degree designation: MS - Master of Science
With a major in: Finance (FINC)

Catalog Program Title: Master of Science in Finance
CIP and Fund code: 52139901 52080100

Rationale for Proposal:

With the concurrence of Dean Eli Jones, as well as that of my colleague Rich Metters, Head of the Department of Information Systems and Operations Management, the Department of Finance respectfully requests authorization to implement the following two changes to the existing Master of Science in Finance (MSF) Program:

1. Offer an Analytics track within the existing MSF program (in addition to the existing “Core Finance” track); and

2. Solicit the Texas Higher Education Coordination Board to approve a Change in the CIP Code of the existing MSF program from 52.0801 to 52.1399.

The enclosed documentation provides additional details and justification.

Thank you for your consideration.

Sorin Sorescu

Program hours: 36

Is this program eligible for financial aid: Yes

Will program hours change (increase/decrease) due to the proposed curriculum changes: No

Program delivery mode: On-campus

Catalog Program Requirements
Program Requirements

Student’s Advisory Committee

The MS-FINC student’s advisory committee consists of the Director of MS-FINC program, who is a faculty member in the Department of Finance at Mays Business School. The Director has the responsibility of approving the proposed degree plans for MS-FINC students. When necessary, recommendations in cases of academic deficiency will be made to the Office of Graduate and Professional Studies.

Degree Plan

The degree plan must be filed with the Office of Graduate and Professional Studies and approved by the MS-FINC director before the deadline imposed by the MS-FINC program and no later than dates announced in the OGAPS calendar of deadlines for graduation. Additional coursework may be added to the approved degree plan by petition to the MS-FINC director.

Credit Requirement

A minimum of 36 semester credit hours of approved coursework is required for the Non-Thesis Option.

Transfer of Credit

A student who has earned 12 hours of graduate credit in residence at Texas A&M University may be authorized to transfer courses in excess of the limits prescribed below upon the advice of the advisory committee and with the approval of the Office of Graduate and Professional Studies. Courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or greater may be considered for transfer credit if, at the time the courses were completed, the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution. Otherwise, the limitations stated in the following section apply. Courses appearing on the degree plan with grades of D, F or U may not be absoled by transfer work. Credit for thesis research or the equivalent is not transferable. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours or equated to semester credit hours. An official transcript from the university at which the transfer coursework was taken must be sent directly to the Office of Admissions.

Courses used toward a degree at another institution may not be applied for graduate credit. If the course was transferred was taken prior to the conferral of a degree at the transfer institution, a letter from the registrar at that institution stating that the course was not applied for credit toward the degree must be submitted to the Office of Graduate and Professional Studies.

Grades for courses completed at other institutions are not included in computing the GPR.

Limitations on the Use of Transfer, Extension and Certain Other Courses

Some departments may have more restrictive requirements for transfer work. If otherwise acceptable, certain courses may be used toward meeting credit-hour requirements for the master’s degree under the following limitations.

The maximum number of credit hours which may be considered for transfer credit is the greater of 12 hours or one-third (1/3) of the total hours of a degree plan. The following restrictions apply:

Graduate and/or upper-level undergraduate courses taken in residence at an accredited U.S. institution, or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University, or the student was in degree-seeking status at the institution at which the courses were taken; and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution.

Courses previously used for another degree are not acceptable for degree plan credit.

The maximum number of credit hours taken in post-baccalaureate non-degree (56) classification at Texas A&M University which may be considered for application to the degree plan is 12.

Not more than 12 hours may be used in any combination of the following categories:
- Not more than 4 hours of 684 (Professional Internship) may be used.
- Not more than 8 hours of 685 (Directed Studies) may be used.
- Not more than 3 hours of 690 (Theory of Research) may be used.
- Not more than 3 hours of 695 (Frontiers in Research) may be used.
- A maximum of 2 hours of Seminar (681).
- A maximum of 9 hours of advanced undergraduate courses (300- or 400-level).

For graduate courses of three weeks' duration or less, taken at other institutions, up to 1 hour of credit may be obtained for each five-day week of coursework. Each week of coursework must include at least 15 contact hours.

Continuing education courses may not be used for graduate credit.

Extension courses are not acceptable for credit.

No credit hours of 691 (Research) may be used.

Exceptions will be permitted only in unusual cases and when petitioned by the student’s advisory committee and approved by the Office of Graduate and Professional Studies.

Non-Thesis Option

The Final Examination is not required for the non-thesis option Master of Science in Finance. Students, upon recommendation of the student’s advisory committee and the approval of the Office of Graduate and Professional Studies, may be required to pass a comprehensive examination.
The final exam cannot be held prior to the mid point of the semester if questions on the exam are based on courses in which the student is currently enrolled. If a student has completed all required degree plan coursework, the student is not required to be registered for classes in the semester the final examination is administered (unless he/she holds an assistantship). For specific final examination requirements, a student should check the program requirements for the degree which he/she is pursuing. Exam results must be submitted with original signatures of only the committee members approved by the Office of Graduate and Professional Studies. If an approved committee member substitution (1 only) has been made, his/her signature must also be submitted to the Office of Graduate and Professional Studies. A student pursuing the non-thesis option is not allowed to enroll in 691 (research) for any reason and 691 may not be used for credit toward a non-thesis option Master of Science degree. A maximum of 4 credit hours of 684 (Professional Internship), 8 credit hours of 685 (Directed Studies), and up to 3 credit hours of 690 (Theory of Research) or 695 (Frontiers in Research) may be used toward the non-thesis option Master of Science degree. In addition, any combination of 684, 685, 690 and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan. All requirements for the non-thesis option Master of Science degree other than those specified above are the same as for the thesis option degree.

Additional Requirements

Residence
Continuous Registration
Time Limit
Foreign Languages
Application for Degree

Residence

In partial fulfillment of the residence requirement for the degree of Master of Science, the student must complete 9 resident credit hours during one regular semester or one 10-week summer semester in resident study at Texas A&M University. Upon recommendation of the student’s advisory committee, department head or Chair of the Interdisciplinary Program, if appropriate, and with approval of the Office of Graduate and Professional Studies, a student may be granted exemption from this requirement. Such a petition, however, must be approved prior to the student’s registration for the final 9 credit hours of required coursework. Students who are employed full-time while completing their degree may fulfill total residence requirements by completion of less-than-full-time course loads each semester. In order to be considered for this, the student is required to submit a Petition for Waivers and Exceptions along with verification of his/her employment to the Office of Graduate and Professional Studies. See Residence Requirements.

Continuous Registration

A student in the thesis option of the Master of Science program who has completed all coursework on his/her degree plan other than 5V98, 5V99, and 691 (research) is required to be in continuous registration until all requirements for the degree have been completed. See Continuous Registration Requirements.

Time Limit

All degree requirements must be completed within a period of seven consecutive years for the degree to be granted. A course will be considered valid until seven years after the end of the semester in which it is taken. Graduate credit for coursework which is more than seven calendar years old at the time of the final examination (oral or written) may not be used to satisfy degree requirements. A student who has chosen the thesis option must have the final corrected version of the thesis cleared by the Office of Graduate and Professional Studies no later than one year after the final examination, or approval of a petition for exemption from the final exam, or within the seven-year time limit, whichever occurs first. Failure to do so will result in the degree not being awarded.

Foreign Languages

No specific language requirement exists for the Master of Science degree.

Application for Degree

For information on applying for your degree, please visit the Graduation section.

Additional information

4/8/17: Updates to Non-Thesis Option verbiage requested by OGAPS.

Required Proposal Forms

ChgtoExistDegree.docx
Request approved by Dean.docx
THECB Form.docx

Reviewer Comments

LaRhesa Johnson (lrjohnson) (10/05/17 2:52 pm): Editorial changes submitted by OGAPS.

Program Reviewer Comments

LaRhesa Johnson (lrjohnson) (10/05/17 2:52 pm): Editorial changes submitted by OGAPS.
Texas Higher Education Coordinating Board

Existing Degree Program
CIP Code Change Request

Directions: Complete this form to request a change to the Classification of Instructional Programs (CIP) code of an existing degree program. The degree program must already be on your institution’s program inventory.

NOTE: This form requires the signature of the Provost or Chief Academic Officer.

Submit the Degree Program CIP Code Change Request via the Online Submission Portal: https://www1.thecb.state.tx.us/apps/proposals/

Information: Contact the Division of Academic Quality and Workforce at 512/427-6200.

Administrative Information

1. Institution: Texas A&M University

2. Current Degree Program Title - Show how the program appears on the Coordinating Board’s approval letter (e.g., Bachelor of Business Administration degree with a major in Accounting):

   Master of Science in Finance

3. Current Degree Program CIP Code:

   52.0801

4. Contact Person: Provide contact information for the person who can answer specific questions about the degree program.

   Name: Sorin M. Sorescu
   Title: Professor and Head, Department of Finance, Mays Business School
   E-mail: ssorescu@tamu.edu
   Phone: 979-458-0380
Request for Change in CIP Code

Proposed Degree Program CIP Code: 52.1399

Implementation Date (MM/DD/YYYY): 09/01/2018

Reason for Change:
Describe why this change would be beneficial to students and/or the degree program.

The MS Finance Program is introducing up to six new courses in Business Analytics for the purpose of better preparing our students to occupy high-level finance jobs that require STEM education.

With the new STEM emphasis, the MS Finance Program will be better positioned to prepare students for full-time employment in the areas of investment management, hedge funds, risk management, trading, and in the emerging but rapidly growing field of Fintech.

With the addition of these new courses, the program would adopt a STEM emphasis in terms of student recruiting, academic content, as well as student placement.

If this change is approved, the MS Finance Program at Texas A&M University will join other master's programs in Finance that have recently adopted a STEM emphasis. For example, the following universities report having STEM designation for their Master of Science program in Finance:

- Massachusetts Institute of Technology (MIT)
- Washington University in St. Louis
- Sacred Heart University
- State University of New York at Buffalo
- University of Cincinnati
- Fordham University
- Portland State University
- Loyola University of Chicago
- University of Rochester
- Vanderbilt University
- Stevens Institute of Technology.

Given the new STEM emphasis in our MS Finance Program, we believe that 52.1399 is now the most appropriate CIP code for that program.

List of Similar Programs at Texas Public Institutions:
Provide the institution and program names for up to five examples of similar programs with the proposed CIP code.

The University of Texas at Dallas offers a program that is similar in scope to ours, in that it places emphasis on STEM education. They call it Master of Science in Financial Engineering and Risk Management. The CIP code of that program is 52.1399.
Existing Program CIP Code Change
Page 3

Other universities within the State of Texas continue to offer more traditional MS Finance programs (under CIP Code 52.0801) without significant emphasis in STEM education.

Despite the small number of examples within the State of Texas, as noted above, a number of prestigious national universities (including MIT and Washington University) have recently retargeted the curriculum in their Master of Finance programs towards STEM education. We believe that these schools provide the best example to follow for the MS Finance Program at Texas A&M University.

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**Signature of Compliance**

I hereby certify that all of the above changes have been approved in accordance with the procedures required by my institution, system office, and Board of Regents, as applicable.

______________________________                        ________________

Provost/Chief Academic Officer        Date
TO
Eli Jones, Dean of Mays Business School

THROUGH
Duane Ireland, Executive Associate Dean, Mays Business School

FROM
Sorin M. Sorescu, Head of the Department of Finance

DATE
August 31, 2017

SUBJECT
Authorization to offer Analytics track within the Master of Science in Finance Program (MSF) and to change the CIP Code of the MSF to 52.1399 (Business Analytics)

Dear Eli,

With the concurrence of my colleague Rich Metters, Head of the Department of Information Systems and Operations Management, I am writing to request authorization to implement the following two changes to the existing Master of Science in Finance (MSF) Program:

1. Offer an Analytics track within the existing MSF program (in addition to the existing “Core Finance” track); and
2. Solicit the Texas Higher Education Coordination Board to approve a Change in the CIP Code of the existing MSF program from 52.0801 to 52.1399. The latter code is STEM-certified.

These changes would become effective as soon as the CIP code change is approved by the Texas Higher Education Coordinating Board, but no earlier than September 1, 2018.

Rationale

The Department of Information Systems and Operations Management has identified a significant market demand for graduate-level education in Financial Analytics. Master’s degrees in Analytics offered by business schools have grown from nearly nonexistent only a few years ago to plentiful today. A detailed 54-page report was authored last year by several INFO faculty covering these issues, so we only summarize it here. There is no governing body that tracks Analytics Master’s degrees, so data are uncertain, but we found the number of programs increased from 10 in 2011 (4 residing in business schools) to nearly 100 in 2016 (46 housed in business schools). Many programs are too new to have student outcome data, but those that do indicated very high percentages of student placement at premium salaries. The content of these programs differ radically. We believe that a Finance/Information Systems degree can occupy a still needed niche among program offerings.

At the same time, the Department of Finance has identified significant unmet job market demand for finance graduates with Analytics skills and knowledge, such as good programming and statistical skills.
Most of these jobs are in the traditional areas of investment management, trading, and risk management. More recently, we have seen a number of jobs offered in the emerging and growing field of Fintech—an area of finance that applies the newest technologies to the financial decision making process. Examples of Fintech technologies include the use of pre-specified algorithms in financial planning and wealth management, mobile banking and trading, as well as peer-to-peer lending that bypasses traditional financial institutions. To substantiate the benefits of this proposed analytics track, I would note that during my most recent trip to New York in May 2017, I met with employers at Citigroup and BNP who indicated a strong level of interest in hiring students having strong skills in both finance and analytics disciplines. In view of this unmet employer demand, the Department of Finance would like to significantly increase the business analytics content of the existing MS Finance program.

In recognition of this changing landscape, our MS Finance program has already operated with a STEM mindset during the past two years. Prof. Kevin Moore, the Program Director (who is an engineer by training), frequently emphasizes upon our students the importance of programming and statistical skills. This year, in response to demand from the job market, we propose to formalize this STEM mindset by adding up to six courses in Business Analytics to our MS Finance Program.

Neither department, in isolation, has the capacity to offer a high-quality, STEM-oriented graduate program Financial in Analytics. For this reason, the Department of Finance and the Department of Information Systems and Operations Management propose to cooperate for the purpose of offering a Financial Analytics track within the existing MS Finance program.

Proposed Curriculum Changes

We propose to offer the following two tracks within the MS Finance Program: a Financial Analytics track and a Core Finance track. The latter closely mirrors the curriculum in the existing MS Finance Program. The former would be created if this proposal obtains approval at all levels. Students admitted to the MSF Program will have the option to choose either one of these two tracks, with the approval of the Director of the MSF program.

Curriculum for the Financial Analytics Track

The proposed curriculum for the Financial Analytics track is as follows:

- Core Courses Required of all students (12 Credit Hours) – *Common across both tracks*
  - Financial Analysis Practicum A
  - Corporate Finance
  - Investments
  - Statistics

- Required Concentration Courses (15 Credit Hours)*
  - Data Mining and Visualization
  - Business Data Management
  - Predictive Analytics for Business
  - Financial Modeling and Optimization
  - Advanced Analytics Elective (must be a STEM-certified graduate course at Texas A&M University)

- Finance Electives (9 Credit Hours)*
  - Financial Analysis Practicum B
  - Valuation
  - Financial Modeling
  - Financial Reporting and Analysis
  - Other graduate-level courses offered by the Department of Finance
Curriculum for the Core Finance Track

The curriculum for the Core Finance Track is as follows:

- **Core Courses Required of all students (12 Credit Hours) – Common across both tracks**
  - Financial Analysis Practicum A
  - Corporate Finance
  - Investments
  - Statistics

- **Required Concentration Courses (21 Credit Hours)**
  - Financial Analysis Practicum B
  - Financial Reporting & Analysis
  - Intermediate Accounting I
  - Financial Modeling
  - Intermediate Accounting II
  - Valuation

- **General Electives (3 Credit Hours)**
  - Business Strategy Elective
  - Analytics Elective
  - Advanced Finance or Interdisciplinary Elective

Notes:

*) MSF students who are subsequently admitted to the Aggies on Wall Street Program will be required to follow a slightly different curriculum, as determined jointly by the Director of the MSF Program and by the Director of Aggies on Wall Street.

The Director of the MS Finance Program may approve exceptions to this curriculum on a case-by-case basis, as justified by the level of prior academic preparation of each student.

Program Administration

The program would continue to be housed and administered in the Department of Finance. The MSF Program Director and Assistant Director will be responsible for administering both the Analytics track and the Core Finance track.

I expect that Professor Kevin Moore will continue to serve in his current capacity of MSF Program Director, given his excellent performance in leading the MSF program since its inception as a premium-based graduate program.

In addition, the Department of Information Systems will assign one of its faculty members to serve as coordinator of the Analytics track of the MSF program. It is expected that Professor Michael Ketzenberg will serve in this capacity.

**Expected Benefits to Mays**

The two changes proposed here are likely to bring a number of benefits to Mays Business School. These fall into three categories: reputational, financial, and fundraising.
Reputational benefits

The main reputational benefits derive from the prospect of preparing Mays students for some of the most prestigious jobs in the business world. These jobs fall into two categories. The first includes high-end jobs in non-financial corporations that require the ability to analyze and interpret big data. There is, at the moment, a shortage of qualified candidates to occupy these types of positions. For example, on February 22, 2017, an article was published on Business.com titled “Big Data, Big Problem: Coping with Shortage of Talent in Data Analysis.” That article states that “Forty percent of companies are struggling to find and retain data analytics talent, and the picture is starting to look even more bleak.”

The second category are high-end jobs in the financial sector—those that require a combination of strong finance, statistics, and programming skills. The demand for these types of jobs is particularly strong and the supply of qualified graduates is, at the moment, quite limited.

In addition, we note that a number of other prestigious business schools offer graduate programs in Finance with an emphasis in business analytics. For example:

- The Master of Finance at Massachusetts Institute of Technology (MIT) reports having a STEM-compatible CIP code since June 2, 2016, with an emphasis in Financial Analytics.
- The Master of Science in Finance at Vanderbilt University reports having a STEM-compatible CIP code since January 20, 2017, with an emphasis in Financial Analytics.
- The Master of Science in Finance at Stevens Institute of Technology reports CIP code of 52.1399, identical to the one proposed here.

If this proposal is approved, Mays could significantly enhance its reputation by joining this select group of peers.

Financial benefits

The combined effects of (1) the new Analytics track and (2) the proposed change to a STEM-certified CIP code are expected to increase the overall enrollment in the MSF Program and, consequently, produce incremental net additional revenue for Mays. We have identified two sources of additional student enrollment.

The first source is that of domestic students who seek a graduate program that combines knowledge of finance with knowledge of programming skills and ability to analyze big data. For example, these are students who would be employed in the rapidly growing field of Fintech.

The second source of additional enrollment comes from international students who are seeking STEM education in the United States, with strong application to financial markets.

The incremental revenues to the college would come primarily in the form of program fees (Mays Masters fees and MS Finance fees). These fees are allocated directly to Mays and can only be used to cover the cost of delivering the MSF Program. Additional revenue is also possible, in the form of an incremental allocation to Mays of tuition dollars and/or formula funding dollars by the University administration, to compensate for higher number of SCHs. However, this decision belongs to the Provost and is not guaranteed.

Fundraising benefits

At least some of the graduates from the revised MSF Program are expected to do very well, financially. For example, graduates who will be working in hedge funds, trading, or investment management, have the
potential to earn significant revenue due to prevailing compensation practices in these industries, whereby investment managers are rewarded as a proportion of assets under management in addition to a receiving a fraction of returns earned in excess of a given benchmark. In the future, these graduates could become promising development prospects for the Texas A&M University Foundation. Realistically, however, I expect that at least ten to fifteen years will be necessary before any such fundraising benefits would materialize.

**Expected Costs**

During the first five years of the revised MSF program we expect the Financial Analytics track to attract at most 25 students. Of those, 10 would be students who otherwise would have followed the Core Finance track, with the remaining 15 being net new students added to the MSF enrollment.

We expect that these 15 new students can be accommodated within existing course offerings. As a result, we do not expect any significant incremental costs during the first five years of operations.

In the unlikely (but favorable) event when we are faced with an unexpectedly strong increase in student demand, we will consider expanding our program to a second cohort of students, with the incremental costs thereof being covered by the incremental program fee revenue generated from this increased enrollment.

**No Significant Incremental Short-Term Costs**

The Department of Finance and the Department of Information System and Operations Management expect to be able to handle a net increase in enrollment of up to approximately 15 students. Therefore, we expect the Analytics track to be offered with existing resources, without incurring any significant net new costs in the short term.

All finance courses offered across the two tracks are already established and can absorb additional students without additional costs. At most, the Department of Finance might need to offer a second section of our core courses in investments and corporate finance. If so, these two additional sections would be funded internally by program fee revenues.

The Department of Information System and Operations Management certifies that resources are available to offer the five courses that fall under their responsibility. Specifically:

- ISYS 650, *Data Mining and Visualization*, would be offered as an adaptation of an existing course, with a new emphasis placed on business analytics.
- ISYS 615, *Business Data Management*, would be offered as an adaptation of an existing course, with a new emphasis placed on business analytics.
- SCMT 650, *Predictive Analytics for Business*, is an existing course.
- SCMT 689, *Financial Modeling and Optimization*, would be offered as an adaptation of an existing course, with a new emphasis placed on financial analytics. Ultimately, a permanent course number would be created for this course.
- SCMT 689, *Statistics*, would be offered as an adaptation of an existing course, with a new emphasis placed on decision making under uncertainty.

The following table shows the proposed instructors for these five courses:
<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Name</th>
<th>Faculty Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCMT 689</td>
<td>Statistics</td>
<td>James Abbey</td>
</tr>
<tr>
<td>ISYS 650</td>
<td>Data Mining and Visualization</td>
<td>Arun Sen</td>
</tr>
<tr>
<td>ISYS 615</td>
<td>Business Data Management</td>
<td>Aaron Becker</td>
</tr>
<tr>
<td>SCMT 650</td>
<td>Predictive Analytics for Business</td>
<td>Michael Ketzenberg</td>
</tr>
<tr>
<td>SCMT 689</td>
<td>Financial Modeling and Optimization</td>
<td>Neil Geismar</td>
</tr>
</tbody>
</table>

Finally, students in the Financial Analytics track would be required to take one advanced elective (3 credit hours) from another department on campus, provided that such elective is STEM-certified. This course may include topics such as time series analysis, econometrics, data warehousing, programming, and business information security.

Long-Term Incremental Costs to be lower than Long-Term Incremental Revenue

At the moment, enrollment in the existing MSF Program is approximately 35 to 40 students per year. As mentioned previously, we believe that we can increase enrollment to approximately 55 to 60 students across the two tracks (Core Finance and Financial Analytics), without significant additional costs to Mays. Over the long term, we expect approximately 27-30 students to choose the Financial Analytics track with the remaining 27-30 students opting for the Core Finance track.

Should the demand for the MSF program grow significantly in the future (to the point where the program can sustain enrollment numbers higher than 60 students without a decline in quality), the two departments, in cooperation with the Office of the Dean at Mays Business School, will evaluate the possibility of admitting a second cohort of students. If such case, the incremental costs associated with that second cohort (mainly in the form administrative and teaching costs) would be covered by the incremental revenues produced by that second cohort (mainly in the form of additional program fees).

Approval Process and THECB Guidelines

Following the guidelines published by the Texas Higher Education Coordinating Board (THECB), we believe that the best way to implement these changes is to modify the existing MS Finance program, rather than to create a brand new degree program. Our opinion is justified as follows:

- Net new costs are insignificant during the first five years, and certainly less than $2 million dollars. When net new costs are less than $2 million for the first five years, it is more likely that THECB will classify this proposal as a change to an existing program rather than a brand new degree program.

- The changes proposed here are relatively minor, making it more likely for the THECB to view this proposal as a change to an existing program rather than a brand new degree program. Specifically:
  - We are not proposing a change to the name of the program; the MS Finance name remains in place.
  - Although we are proposing a change in the CIP Code, we are not proposing a change in the name of the degree or in the degree designator.
  - We are not proposing a change in the administrative unit of the program; the program will continue to be housed in the Department of Finance.
  - There are four courses required of all students in the program, independent of track. These courses (12 credit hours out of 36) represent more than 30% of the total SCH required for this degree program.
  - The new Analytics specialization requires 15 credit hours, which is less than 50% of the 36 credit hours required in the MSF Program.
- No new accreditation is needed.
- We do not expect to need to hire any new faculty during the first five years as a result of this new track.
- Although we expect our students to have additional employment opportunities as a result of these changes, these opportunities will be in closely-related or emerging job market sectors.

If you approve this memorandum, the Department of Finance will submit the enclosed proposal through the approval process. In addition to this approved memo, the Department will submit the following two documents for approval at the university level:

1. A brief narrative of the proposed changes and justifications, and
2. A form titled “Notification Form for Change to An Existing Degree Program” that must be filed with the Texas Higher Education Coordinating Board (THECB).

Thank you for your consideration.
Administrative Change Request
Change to An Existing Degree Program

Instructions. Institutions requesting a change to an existing degree program should address the factors below in determining if the request is a degree modification or would necessitate a request for a new degree program. No one factor necessarily determines the decision but in general the more extensive the change(s) the more likely the need for a new program request.

I. Current Degree Information: (list current degree program, CIP code, and administrative structure)

   - Current degree program: Master of Science in Finance
   - Current CIP Code: 52.0801
   - Current administrative unit: Department of Finance
     Mays Business School
     Texas A&M University

II. Proposed Change:

A. Program Identification: Describe changes to the program identification.

   1. Change name.

      No change in name is requested.

   2. Change in degree designation (e.g., EdD to PhD, MS to MBA, BA to BS, etc.).

      No change in degree designation is requested.

   3. CIP Code change.

      A change in CIP Code is requested.

      The new CIP Code requested is 52.1399 (Business Analytics)

   4. Change in administrative unit.

      No change in administrative unit is requested.

B. Justification for Change: Describe the content of the existing degree program authorized by the Coordinating Board and evidence of the need for the change.

   The MS Finance Program has operated with a STEM mindset for the past two years, with the Program Director (who is an engineer by training) frequently emphasizing upon our students the importance of
programming and statistical skills. This year, in response to demand from the job market, we propose to formalize this STEM mindset by adding up to six courses in Business Analytics to our MS Finance Program. Concurrently, we propose to change the CIP code to 52.1399 (Business Analytics) to better reflect the program’s new emphasis.

If this change is approved, the MS Finance Program at Texas A&M University will join other master’s programs in Finance that have recently adopted a STEM emphasis. For example, the following universities report having STEM designation for their Master of Science program in Finance:

- Massachusetts Institute of Technology (MIT)
- Washington University in St. Louis
- Sacred Heart University
- State University of New York at Buffalo
- University of Cincinnati
- Fordham University
- Portland State University
- Loyola University of Chicago
- University of Rochester
- Vanderbilt University
- Stevens Institute of Technology.

Given the new STEM emphasis in our MS Finance Program, we believe that 52.1399 is now the most appropriate CIP code for that program.

C. **Other Changes Associated With Request.**

1. **Focus/purpose or objectives/mission of degree.**

   No changes are expected.

2. **Additional areas of employment available to graduates.**

   The STEM focus in Business Analytics would make it easier for our students to secure jobs in a sub-set of the financial sector that requires superior programming and statistical skills. These jobs are usually found in the areas of investment management, hedge funds, trading, risk management, as well as the newly emerging field of Fintech. At the moment, the majority of our MSF students occupy jobs in the more traditional areas of corporate finance and banking.

   Although we expect our students to have additional employment opportunities as a result of these proposed changes, these opportunities
will be in closely-related or emerging job market sectors, and do not justify the creation of a brand new degree program.

D. Describe changes in the curriculum. Include information on:

1. Degree completion requirements.

   There are no changes to the degree completion requirements. The program will still require the completion of 36 credit hours, and there will be no thesis requirement.

2. Additional new courses to be added.

   A total of six new STEM courses will be added, as follows:

   SCMT 689, Statistics, would be offered as an adaptation of an existing course, with a new emphasis placed on decision making under uncertainty. Ultimately, a permanent course number would be created for this course.

   ISYS 650, Data Mining and Visualization, would be offered as an adaptation of an existing course, with a new emphasis placed on business analytics.

   ISYS 615, Business Data Management, would be offered as an adaptation of an existing course, with a new emphasis placed on business analytics.

   SCMT 650, Predictive Analytics for Business, which is an existing course offered by the Department of Information Systems.

   SCMT 689, Financial Modeling and Optimization, would be offered as an adaptation of an existing course, with a new emphasis placed on financial analytics. Again, a permanent course number would be created for this course.

   The sixth course will be a general elective with a STEM CIP code, to be chosen in areas such as: time series analysis, econometrics, data warehousing, and business information security.

   The first course (Statistics) would be required of all students. The remaining five courses would be offered as prescribed electives.

3. Changes to existing courses.

   There would be no changes to existing courses.
4. Courses common to all students in the degree plan

The following four courses, totaling 12 credit hours, are required of all students in the MSF Program:

FINC601, Financial Analysis Practicum A
FINC602, Corporate Finance
FINC603, Investments
SCMT689, Statistics

Together, these courses represent more than 30% of the total number of student credit hours required for the MS Finance degree.

5. How will the set of courses required of all students in the degree program change?

We are adding SCMT689 (Statistics) as the one course that is now required of all students.

6. New specializations (tracks, concentrations, focus areas, emphases, etc.)

The following prescribed electives will be offered as a “Financial Analytics” track within the MS Finance program:

- ISYS 650, Data Mining and Visualization
- ISYS 615, Business Data Management
- SCMT 650, Predictive Analytics for Business
- SCMT 689, Financial Modeling and Optimization
- One STEM-certified elective

E. Describe new accreditation, licensure & certification

1. What new program accreditation would become available?

No new accreditation is required. All Mays graduate programs are accredited by the AACSB.

2. What new professional licensure or certification would become available?

No new professional licensure or certification would be required.

F. Describe changes needed in core faculty

1. New faculty needed to implement proposed change
We do not anticipate the need to hire additional faculty to implement these changes. Five of the six additional courses to be added (described in Section D.2) will be offered by the Department of Information Systems with their existing resources. The sixth course will be chosen from among a large set of graduate courses already offered at Texas A&M University.

2. New areas of expertise sought in additional faculty during past three years that have contributed to degree program change

The proposed change requires faculty expertise in the areas of statistics, data mining, data management, predictive analysts, and optimization. The faculty in the Department of Information Systems and Operations Management (INFO) at Mays Business School is well qualified to teach graduate-level courses in these areas.

3. New areas of expertise in additional faculty that will be hired during the upcoming three years

As previously mentioned, we do not anticipate that these program changes would require new faculty within the next three years.

This said, the Departments of Finance and Information Systems and Operations Management are currently in the process of recruiting tenure-track faculty as part of the normal faculty line allocation process made by the Office of the Dean at Mays Business School (independent of this proposed change). Therefore, if this proposed change is approved, the Departments of Finance and Information Systems and Operations Management will make every effort to ensure that at least some of the new faculty hired have the appropriate skill sets to teach STEM-oriented courses in the new MSF program.

4. Existing faculty that will be reassigned to a different program or terminated. Other faculty that would become responsible for program delivery.

We do not expect any terminations as a result of this change.

The Department of Finance would continue to manage the program under the leadership of Professor Kevin Moore, the existing Program Director, and would continue to offer all currently existing graduate level courses.

The Department of Information Systems and Operations Management expects to assign the following five faculty members to teach the first five new courses mentioned in Section D.2:
Course No. | Course Name                                      | Faculty Assigned     
----------|--------------------------------------------------|----------------------
SCMT 689  | Statistics                                       | James Abbey          
ISYS 650  | Data Mining and Visualization                    | Arun Sen             
ISYS 615  | Business Data Management                         | Aaron Becker         
SCMT 650  | Predictive Analytics for Business                | Michael Ketzenberg   
SCMT 689  | Financial Modeling and Optimization              | Neil Geismar         

These courses will all be taught in load.

In addition, the Department of Information Systems expects to assign Professor Michael Ketzenberg to coordinate the program on their end and to advise students on courses offered by that department.

G. Cost:

1. Please indicate new costs that will be incurred with the modification to the degree program during the first five years after the changes.

   We expect incremental enrollment to be, at most, 20 students per year during the first five years after these changes take effect. We expect that these 20 students will be accommodated within existing course offerings. As a result, we do not expect any significant incremental costs during the first five years of operations.

2. How will these costs be met?

   Should the demand for this program grow above-expectations, we will evaluate the possibility of admitting a second cohort of students. If we do, the incremental costs associated with that second cohort (mainly in the form of administrative and teaching costs) will be covered from the incremental revenues generated by the additional enrollment (mainly in the form of additional program fees).

H. Conclusion:

Following the guidelines published by the Texas Higher Education Coordinating Board (THECB), we believe that the best way to implement these changes is to modify the existing MS Finance program, rather than to create a brand new degree program. Our opinion is justified as follows:

- Net new costs are insignificant during the first five years, and certainly less than $2 million dollars. When net new costs are less than $2 million for the first five years, it is more likely that THECB will classify
this proposal as a change to an existing program rather than a brand new degree program.

- The changes proposed here are relatively minor, making it more likely for the THECB to view this proposal as a change to an existing program rather than a brand new degree program. Specifically:

  - We are not proposing a change to the name of the program; the MS Finance name remains in place.
  - Although we are proposing a change in the CIP Code, we are not proposing a change in the name of the degree or in the degree designator.
  - We are not proposing a change in the administrative unit of the program; the program will continue to be housed in the Department of Finance.
  - There are four courses required of all students in the program, independent of track. These courses (12 credit hours out of 36) represent more than 30% of the total SCH required for this degree program.
  - The new Analytics specialization requires 15 credit hours, which is less than 50% of the 36 credit hours required in the MSF Program.
  - No new accreditation is needed.
  - We do not expect to the need to hire any new faculty during the first five years.
  - Although we expect our students to have additional employment opportunities as a result of these changes, these opportunities will be in closely-related or emerging job market sectors, and do not justify the need to create a new degree program.