



NOTRE DAME  
OF MARYLAND  
UNIVERSITY

April 29, 2020

James D. Fielder, Jr., Ph.D.  
Secretary of Higher Education  
Maryland Higher Education Commission  
6 North Liberty Street  
Baltimore, MD 21201

Dear Secretary Fielder:

Pursuant to COMAR 13.B.02.03.03D(1) & 13B.02.03.06, Notre Dame Maryland University is pleased to submit a proposal for a new Bachelor of Arts in Actuarial Science. Guided by the certification requirements of the Society of Actuaries (SOA), the University faculty (members of the Mathematics/Computer Science and Business/Economics departments) have collaborated to design a program of study. The curriculum will prepare students for the Introductory Financial Mathematics and Probability exams and will satisfy the SOA Validation by Educational Experience (VEE) requirements

This degree program addresses the Maryland State Plan for Postsecondary Education, 2017-2021. The program uses a holistic admissions process to select a talented and diverse student body thereby supporting the State's minority student achievement goals. Accessibility and affordability of education will be maintained, as the University does not charge out of state tuition. The Maryland Higher Education Commission State Plan: *Increasing Student Success with Less Debt 2017-2021* goals and strategies call for Access, Success and Innovation. The proposed program allows students access to an opportunity to enroll in and earn a professional degree that will support their advancement in the workforce meeting the critical need across Maryland. The proposed program will provide a high quality affordable degree program that fosters innovation and includes support services to ensure student success. The curriculum and support services are designed to facilitate on-time degree completion, include career planning and advising, and provide innovative pedagogies.

Institution: Notre Dame of Maryland University  
Program: Actuarial Science  
Degree: BA  
Contact person: Suzan Harkness. Associate Vice President for Academic Affairs and Assessment  
410-532-5316, sharkness@ndm.edu

If you have any questions about this new program, please do not hesitate to call. Thank you in advance for consideration of this proposal. Please find a check in the amount of \$850.00 enclosed.

Sincerely,

A handwritten signature in blue ink that reads "Sr. Sharon Slear".

Sr. Sharon Slear, Ph.D.  
Provost and Vice President for Academic Affairs



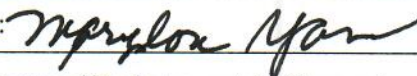
## Cover Sheet for In-State Institutions New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	Notre Dame of Maryland University
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*Each action below requires a separate proposal and cover sheet.*

- |   |   |
|---|---|
| <input checked="" type="radio"/> New Academic Program | <input type="radio"/> Substantial Change to a Degree Program            |
| <input type="radio"/> New Area of Concentration       | <input type="radio"/> Substantial Change to an Area of Concentration    |
| <input type="radio"/> New Degree Level Approval       | <input type="radio"/> Substantial Change to a Certificate Program       |
| <input type="radio"/> New Stand-Alone Certificate     | <input type="radio"/> Cooperative Degree Program                        |
| <input type="radio"/> Off Campus Program              | <input type="radio"/> Offer Program at Regional Higher Education Center |

Payment <input checked="" type="radio"/> Yes	Payment <input type="radio"/> R*STARS	Payment	Date
Submitted: <input type="radio"/> No	Type: <input checked="" type="radio"/> Check	Amount: \$850.00	Submitted: 4/29/2020

Department Proposing Program	School of Arts, Sciences and Business		
Degree Level and Degree Type	BA		
Title of Proposed Program	Actuarial Science		
Total Number of Credits	120		
Suggested Codes	HEGIS: 504.00	CIP: 521304.0000	
Program Modality	<input checked="" type="radio"/> On-campus	<input type="radio"/> Distance Education ( <i>fully online</i> )	
Program Resources	<input checked="" type="radio"/> Using Existing Resources	<input type="radio"/> Requiring New Resources	
Projected Implementation Date	<input checked="" type="radio"/> Fall	<input type="radio"/> Spring	<input type="radio"/> Summer      Year: 2020
Provide Link to Most Recent Academic Catalog	URL: <a href="http://catalog.ndm.edu/undergraduate-catalog">http://catalog.ndm.edu/undergraduate-catalog</a>		
Preferred Contact for this Proposal	Name:	Suzan Harkness	
	Title:	Associate Vice President of Academic Affairs	
	Phone:	(410) 532-5316	
	Email:	sharkness@ndm.edu	
President/Chief Executive	Type Name:	Marylou Yam	
	Signature:		Date: 04/27/2020
	Date of Approval/Endorsement by Governing Board:		

Revised 3/2019



**NOTRE DAME OF MARYLAND UNIVERSITY**  
**Baltimore, Maryland**  
**Academic Program Proposal Submitted to the Maryland Higher Education Commission**  
**Bachelor of Arts, Actuarial Science**

Pursuant to COMAR 13.B.02.03.03D(1) & 13B.02.03.06, Notre Dame Maryland University (“NDMU” or “the University”) is pleased to submit a proposal for a new Bachelor of Arts in Actuarial Science. Guided by the certification requirements of the Society of Actuaries (SOA), the University faculty (members of the Mathematics/Computer Science and Business/Economics departments) have collaborated to design a 48-credit course of study. The curriculum will prepare students for the Introductory Financial Mathematics and Probability exams and will satisfy the SOA Validation by Educational Experience (VEE) requirements

**A. Centrality to Institutional Mission and Planning Priorities**

1. Provide a description of the program, including each area of concentration (if applicable), and how it relates to the institution’s approved mission.

Notre Dame of Maryland University’s heritage has been sustained since 1895 by providing timely and timeless higher education undergraduate opportunities for women. Today, the Notre Dame Mission challenges women and men to live these values:

- strive for intellectual and professional excellence,
- build inclusive communities,
- engage in service to others, and
- promote social responsibility

While undergraduate full-time women’s education remains a core priority for the University, today adult women and men are admitted to part-time undergraduate programs and full- and part-time graduate programs. The University continues to meet the particular educational and contemporary professional needs of undergraduate women in the Women’s College via this most recent effort to expand options for workforce development through a baccalaureate degree (bachelor of arts) in actuarial science. To better meet the needs of students, courses in the program will be offered at the main campus on North Charles Street and the University will also provide online class options.

In keeping with its Mission, Notre Dame emphasizes transformative education for women that addresses competencies needed for today’s workplace and professional development that integrates those competencies, which are tested in a rigorous liberal arts and sciences educational environment. Guided by the certification requirements of the Society of Actuaries (SOA), the University faculty (members of the Mathematics/Computer Science and Business/Economics departments) has collaborated to design a 48-credit course of study. The curriculum will prepare students for the Introductory Financial Mathematics and Probability exams and will satisfy the SOA Validation by Educational Experience (VEE) requirements. Such students will be able to qualify to become associates of the Society of Actuaries and will be employable in entry-level actuarial positions.



At its founding, Notre Dame initiated programs and hired faculty for the natural sciences and mathematics curriculum, a controversial plan for higher education for women at that time. Currently, STEM education remains a strength of NDMU, evidenced in strong major programs of study in mathematics, pre-engineering and physics, as well as chemistry and biology. Such quantitative competences are also stressed in the study of finance, accounting, statistics and economics courses in NDMU's accredited major in business (via the Accreditation Council for Business and Schools—ACBSP). The actuarial science degree will be closely aligned with and draw on the same curricular strengths as those cultivated through the institution's two master's degrees in Data Analytics and Risk Management.

2. Explain how the proposed program supports the institution's strategic goals and provide evidence that affirms that it is an institutional priority.

The current strategic plan for the University stresses development of “innovative degree programs, interdisciplinary centers of excellence, and distinctive leadership and experiential learning opportunities for students.” Further examples of this commitment to the anticipated actuarial science program are the successful accreditation of the University's business programs and the new capital campaign which includes renovation of the Knott Science Center. The campaign also includes updating technologies that will support the Mathematics and Computer Studies Department.

The University enrolls an increasing number of Women's College students in the mathematics, natural science and business areas. Notre Dame's successful student-centric and collaborative pedagogy in STEM fields has been recognized through grants from the National Science Foundation (2011-2016) to provide scholarships, networking and experiential learning opportunities. As a liberal arts and sciences institution, Notre Dame assumes a serious responsibility to provide intentional career pathways for students. Actuarial science will provide a clear career foundation of study for students interested in applied mathematics and finance/accounting in particular. Additionally, the University was awarded a two-year grant from the Booth-Ferris foundation that provides financial literacy training for first-generation students. Under the Title III grant also recently garnered by the institution, financial literacy instruction will be provided to all Women's College students by 2024. Via this program, students will be able to learn indirectly about career options in the financial arena as NDMU cultivates student interest in a key life skill.

Approximately 15 percent of the Women's College student body has declared majors aligned with quantitative (STEM) competencies and business; such interests should grow with the introduction of this major. Further, the enrollment statistics for fall 2019 indicate that 63 percent of the undergraduate Women's College population is minority/ethnic. The fall 2018 entering class was more than half first-generation. The introduction of this major will provide a compelling option for success for these students seeking entry-level positions in mathematics and finance areas.

The University is well-positioned to initiate this major, from the standpoints of student interest, workforce needs, facilities, strengths of the teaching faculty, the rigor of the curriculum, and academic support services.



3. Provide a brief narrative of how the proposed program will be adequately funded for at least the first five years of program implementation.

While Section L of this proposal provides details related to the program budget, the costs to initiate this curriculum are modest. Only two new 300-level courses must be developed (a 300-level statistics course and a 300-level financial mathematics course). All other courses are included in a rotation across the academic year and are already populated by students engaged in other related areas of study.

Responsibility for design and delivery of the major curriculum rests with the full-time faculty who will teach the program courses. The University anticipates not more than one course a term within the program would be offered by adjunct faculty. The program budget will be adjusted to include a full-time faculty appointment should growth require such action.

Library holdings and facilities for teaching and uses of technology are already in place given the curriculum of collaborating departments but will be enhanced incrementally to address new needs and innovations.

Costs for marketing the major will be included in the enrollment management budget attached to the Women's College.

4. Provide a description of the institution's commitment to:

- a) ongoing administrative financial and technical support of the proposed program

The program will have its own operating budget to address routine instructional needs. The upcoming renovation of Knott Science Center beginning in FY2021 will include enhanced computer laboratory capacity, although the software and hardware presently available to students will adequately support the major. The Business Department pedagogy incorporates University-supported software for accounting, finance and economics courses.

The University will assure that all technology for instruction is reliable, refreshed and provides robust support for learning.

In addition to a full-time technology specialist whose assignment is to support faculty in course development consistent with the Learning Management system, students will be assisted by the Help Desk staff and course-embedded tutors. The peer tutors will assist with technology-based assignments in mathematics, computer studies and business courses.

- b) continuation of the program for a period of time sufficient to allow enrolled students to complete the program

Through supportive and directive personal academic advising by faculty and the assistant dean for academic support programs, Notre Dame will monitor the academic progress of each cohort of students electing this major. While full-time progression to the degree will be mapped out toward completion in a timely

manner for individual students (i.e., within eight semesters), the University will support students who persist and plan study for additional semesters.

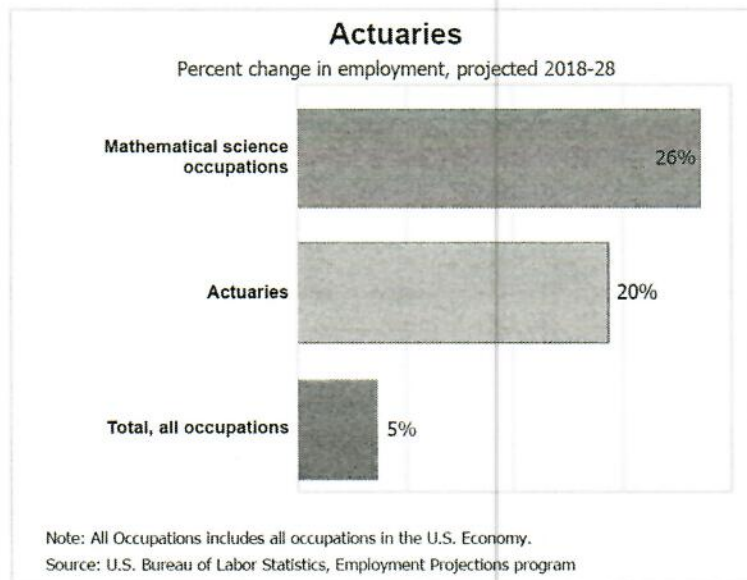
Notre Dame does not “strand” students who need to complete any major. Options to complete the major will be provided through pending courses even if the institution determines to discontinue the program after a six-year trial. All but two of the courses are already embedded in the curriculum and all courses are scheduled on a regular basis to assure access.

## B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan

This proposed program is consistent with the goals of the *2017-2021 Maryland Plan for Postsecondary Education*, particularly Strategy 8 which addresses workforce development and readiness.

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State.

The field of risk analysis is growing at a substantial rate nationally and in Maryland, and the associated skills are being utilized in a growing number of sectors outside of traditional actuarial related position. Today’s modern workforce requires more technical competencies to increase financial literacy as well as capacities to analyze big data and risk. Building off of NDMU’s graduate level programs in Data Analytics and Risk Management, Notre Dame believes is it prudent to embed such competencies in specific undergraduate opportunities. Graduates from NDMU’s proposed Actuarial Science program will be ideally suited with a strong foundation of liberal arts and professional skills to advance the state of knowledge and the workforce in risk analysis.



The Mission of Notre Dame of Maryland University put a special emphasis on intellectual and professional excellence the promotion of social responsibility, particularly for the underserved and women. NDMU’s proposed Actuarial Science program will allow the



University to create additional career pathways for its diverse student population. NDMU's Women's College students are 38% 1<sup>st</sup> Generation, 63% minority, and 55% Pell eligible. According to data provided by the SOA, 62.6 percent of practicing actuaries are men, and only 22 percent are persons of color. Women who are first generation college attendees and women of color could be better represented in the actuary profession, and NDMU can assist in making progress in achieving such a worthy goal.

2. Provide evidence that the perceived need is consistent with the Maryland State Plan for Postsecondary Education

The goals and strategies of the Maryland State Plan for Postsecondary Education: *Increasing Student Success with Less Debt 2017-2021* call for Access, Success and Innovation. Particularly, the State Plan calls for institutions to "Promote and implement practices and policies that will ensure student success" and "Foster innovation in all aspects of Maryland higher education to improve access and student success." NDMU's proposed MSPA addresses the following strategies:

- Strategy 7: Enhance career advising and planning services and integrate them explicitly into academic advising and planning.
- Strategy 8: Foster innovation in all aspects of Maryland higher education to improve access and student success.
- Strategy 11: Encourage a culture of risk-taking and experimentation.

NDMU's proposed Actuarial Science program provides students access to an innovative opportunity to enroll in and earn an in-demand degree that will support their advancement in a variety of industries. The curriculum and support services are designed to facilitate on-time degree completion, include career planning and advising, and provide innovative pedagogical options that serve the needs of students. In addition to focused quantitative and technology studies related to the field, the analytical and communication tools cultivated in a liberal arts curriculum will cultivate other professional readiness strategies for the students.

Collaborations between businesses and the University Career Center will stress internship opportunities. Training already in place regarding career readiness for First Generation students and other students of high need will be augmented. Students in the major will be tracked for success--not only for academic proficiency through the Office of Academic Support but also for professional internship placement performance.

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State

While no particular major is required to qualify to take the examinations to become an associate of the Society of Actuaries, graduates of NDMU's actuarial science baccalaureate program will have completed requirements related to business, statistics, and computer science that will not only prepare them for certification exams but also for securing sought after entry-level positions.

According to Bureau of Labor Statistics (BLS) under the U.S. Department of Labor (DOL), in 2018, the largest employers of actuaries were as follows:



Finance and insurance	71%
Professional, scientific, and technical services	15
Management of companies and enterprises	6
Government	4
Self-employed workers	1

While casualty insurers are the principal employers of actuaries (50 percent), according to data published by the Casualty Actuarial Society in 2018, government, financial advisors, banking and health care agencies also hire actuaries. The skills of actuaries are needed across all aspects of risk assessment in business and various government sectors.

According to data provided by the Society of Actuaries and the Casualty Actuary Society, the largest numbers of actuaries are employed in the Northeast and the South. (CAS number for 2013 is 50 percent of practicing actuaries; SOA number is 39 percent.) This data reflects the high number of finance, insurance and government entities operating in this geographic area of the United States and employing actuaries. Members of the Academy of American Actuaries number more than 19,500 and generally work in the area of public policy/government and actuarial oversight.

BLS projects an increase of actuarial jobs (SOC: 15-2011) from 25,000 in 2018 to 30,000 in 2028, an increase of 5,000 (20%) jobs nationally, much faster than the average for all occupations. Combined with 22,000 estimated occupational separations over ten years (2,200 annually), BLS projects 105,600 openings over ten years, or 10,560 annual openings. BLS estimates that the 2019 median pay for actuaries is \$108,350.

As reported by BLS, the Maryland-DC-Northern Virginia region is ranked number 10 nationally in metropolitan employment of actuaries. The adjacent metropolitan area of greater Philadelphia-Camden-Wilmington-northeast Maryland is ranked third. The combined number of positions in those areas is 1,460, according to data from 2018.

The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. A location quotient greater than one indicates the occupation has a higher share of employment than average, and a location quotient less than one indicates the occupation is less prevalent in the area than average. The location quotient for actuaries in the State of Maryland is healthy at 1.23.

In Maryland, the Maryland Department of Labor (MDOL) projects an increase in actuarial jobs (SOC 15-2011 – Actuaries; and SOC 13-2053 – Insurance Underwriters) from 2,543 in 2016 to 2,698 in 2026, an increase of 155 jobs (6%). Combined with 1,962 estimated occupational separations over ten years (196 annually), MDOL projects 2,117 openings over ten years, or 212 annual openings.

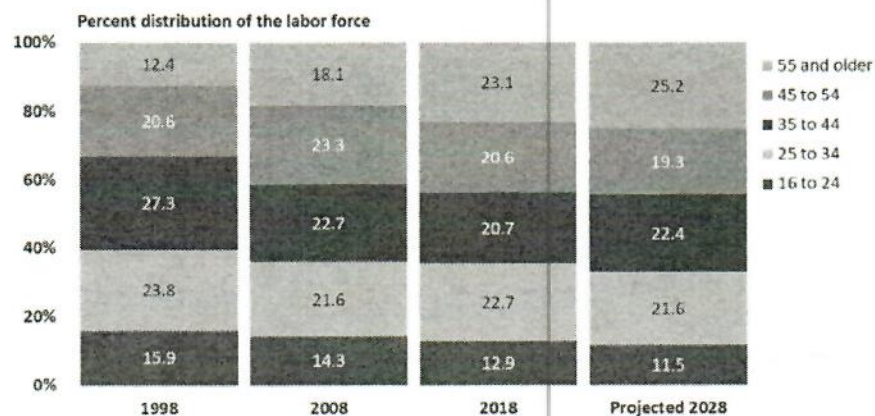
According to the Maryland Higher Education Commission’s (MHEC) Academic Program Inventory and Trends in Degrees by Program Report 2019, Maryland currently has three colleges or universities approved to offer actuary related programs. In 2019, degree



production was at 55 degrees annually (3-YR rolling average of graduates). Compared to MDOL data, this leads to the conclusion of an average annual shortfall of 157 graduates.

In addition to the 5,000 new positions projected by 2028 by BLS, DataUSA reports that, in 2018, 13.5 to 15.2 percent of female actuaries were between the ages of 50 and 55. The number of men in the field has historically skewed younger. By 2028, BLS projects the percentage of the overall labor force 55 and older will increase to 25.2% from 23.1% in 2018. The impact of the aging workforce will be felt in the actuary field, and one can reasonably conclude that such openings by attrition/retirement will become an increasingly significant factor in recruitment for the field.

### Labor Force Share, by Age Group, 1998, 2008, 2018, and Projected 2028



The curriculum to be followed is consistent with the guidelines of the professional actuarial associations referenced in this document. The courses specified are those recommended for readiness for the Financial Management and Probability exams as well as Validation by Educational Experience (VEE). These will be consistent with qualifying for entry-level employment as an associate of the Society of Actuaries. Professional custom is for credentialing through the two examinations to be completed at the time of the awarding of the degree.

Marketing and recruitment for this major has not yet begun. However, approximately 15 percent of the current student body routinely elects related STEM, business and computer studies related majors. These current and new students are highly likely to have an interest in the proposed actuarial science program. Given our own internal interest and the number of college-bound students interested in pursuing actuarial science, the University conservatively anticipates three new majors and two changes of major. By year four, the University anticipates carrying approximately 10 majors annually with perhaps six graduating each year.

**D. Reasonableness of Program Duplication**

1. Identify similar programs in the State and/or same geographical area. Discuss similarities and differences between the proposed program and others in the same degree to be awarded.

Morgan State University offers a baccalaureate degree in actuarial science, as well as a mathematics major with a concentration in actuarial science. Towson University offers a concentration in actuarial science and risk management within the mathematics major. McDaniel College recently received approval for a major in actuarial science.

Because of certification requirements, the curriculum of all institutions reflects certain commonalities in courses in mathematics and business—statistics, calculus, probability, finance, accounting and economics.

Notre Dame’s program is also designed to follow these standards. Notre Dame is intentionally offering this degree as a bachelor of arts to retain the liberal art character of the degree—which will include course offerings such as Teamwork and Negotiation, Women in Leadership, Business Ethics, and languages.

2. Provide justification for the proposed program.

Notre Dame is responding to workplace needs for actuarial science expertise. Further, Notre Dame is committed to the advancement of women in fields in which they are underrepresented. Such endeavors are Mission-centric to the institution, which from its beginnings believed that women were highly capable in disciplines requiring proficiency in analytical and quantitative studies. Notre Dame’s interactive pedagogy and small class sizes will allow women to prepare successfully to become actuaries.

**E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)**

1. Discuss the program’s potential impact on the implementation or maintenance of high-demand programs at HBIs.

Notre Dame is coordinating a career-oriented major already embedded within its existing courses for the most part. The modest number of students projected for the major should not negatively impact HBIs.

**F. Relevance to the Identity of Historically Black Institutions (HBIs)**

1. Discuss the program’s impact on the uniqueness and institutional identities and missions of HBIs.

NDMU does not believe this program will impact the unique mission and identities of HBIs.

**G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR 13B.02.03.10)**



1. Describe how the proposed program was established, and also describe the faculty who will oversee the program

Interest in STEM-related and business degrees has increased in recent semesters at NDMU, and STEM education has remained a strength at the university. The provost, and the prior and current deans of the School of Arts, Sciences and Business encouraged the faculty of the Mathematics/Computer Science and Business and Economics departments to consider leveraging these curricular strengths into applied mathematical studies with a clearer focus. During calendar year 2019, the faculty studied a number of options and developed a curriculum plan for actuarial science. The program of study is intentionally multi-disciplinary (mathematics, economics, business/finance, and computer studies). All faculty to be assigned to the program are experienced professors who have taught on both graduate and undergraduate levels.

2. Describe the educational objectives and learning outcomes appropriate to the rigor, breadth, and (modality) of the program.

*Principal Educational Objective*

To cultivate the quantitative and analytical competencies required for successfully completing initial certification by the SOA.

***Learning Outcomes***

Students will:

- acquire and demonstrate the explicit problem-solving skills required for the SOA Probability Exam
- acquire and demonstrate the explicit problem-solving skills required for the SOA Financial Mathematics exam
- demonstrate operational and analytical understanding of finance/financial literacy, operation of insurances, economic theory, and the functioning of insurance and financial markets in private and government sectors
- model real-world problems mathematically, interpret results properly and make recommendations for resolution based on best practices
- develop communication skills to explain analytical results to clients and constituencies

3. Explain how the institution will

- a) provide for assessment of student achievement of learning outcomes of the program

Student learning outcomes for all major courses will be assessed against specific desired competencies. Competencies will be assessed via mathematical problem solving, computer program development, case studies and simulations. The aggregate data will be used by the faculty to assist students and improve curriculum and pedagogy.

Students also complete evaluations for every course, and the faculty will also review and respond to this feedback.

All assessment data is reviewed within the departments for required action and presented to the School of Arts, Sciences and Business Assessment Committee. Results of assessments and reports of needs are then forwarded to the dean and the University Assessment Committee for additional action including augmentation or reallocation of resources.

b) document student achievement of learning outcomes in the program

Clearly, one external assessment of importance will be to review the results of the certification exams and to track how many students qualify as associates of the Society of Actuaries at the time of first full-time employment.

More informally, success in internships and initial career positions will be monitored.

4. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirements.

*Proposed Curriculum*

Catalog Number	Title	Credits
MAT 211	Calculus I	4
MAT 212	Calculus II	4
MAT 213	Calculus III	3
MAT 215	Basic Statistics	3
MAT 243	Linear Algebra	3
MAT 3XX	Intermediate Statistics*	1
MAT 311	Theory of Probability	3
MAT 315	Differential Equations	3
MAT 3XX	Financial Mathematics*	3
MAT 425	Simulation and Modeling	3
ECO 211	Macroeconomics	3
ECO 212	Microeconomics	3
BUS 253	Financial Accounting	3
BUS 321	Corporate Financial Management	3
CST 171 or CST 295	Programming Concepts or C++ Programming	3
Upper-level Elective	Upper-level course choice from among the disciplines of business, economics or mathematics: <ul style="list-style-type: none"> <li>• MAT 310 Abstract Algebra</li> <li>• MAT 303 Analysis</li> <li>• BUS 334 Teamwork and Negotiation</li> <li>• BUS 451 Women in Leadership</li> <li>• BUS 484 Investment Management</li> <li>• BUS 485 Advanced Financial Management</li> <li>• ECO 311 Applied Macroeconomics</li> </ul>	3
	New course to be developed and added to the curriculum*	



		Total Credits	48
		Upper-level Credits	(19)

### **Course Descriptions**

#### **MAT-211 Calculus I**

Introduces functions, limits, continuity, differential calculus of polynomial, rational, exponential and logarithmic functions, as well as basic integration techniques. Applications are considered throughout the course with an emphasis on the life sciences. Weekly laboratory is an integral part of the course. Graphing calculators used to explore topics covered. Fulfills the General Education Requirement in mathematics Prerequisite: Placement in MAT-211 or successful completion of MAT-107. [4 credits]

#### **MAT-212 Calculus II**

Studies trigonometric functions, integration by parts and tables, improper integrals, functions of two variables, partial derivatives, double integrals, differential equations, geometric and power series, basic convergence tests, Taylor polynomials and series, and Fourier polynomials and series. Applications are considered throughout the course with an emphasis on the life sciences. Weekly laboratory is an integral part of the course. Graphing calculator is used to explore topics covered. Prerequisite: Calculus I or placement into MAT-212. [4 credits]

#### **MAT-213 Calculus III**

Covers visualization of functions of two variables, contour graphs, vector geometry, partial derivatives, gradient vector, directional derivatives, constrained optimization, double integral in rectangular and polar coordinates, triple integrals in rectangular, cylindrical and spherical coordinates. Applications are considered throughout the course. Mathematica is used to explore topics covered. Prerequisite: Calculus II or placement into MAT-213. [3 credits]

#### **MAT-215 Basic Statistics**

Introduces the basic ideas of statistics: descriptive statistics, central tendency variability, probability distributions, sampling, estimation, hypothesis testing, correlation and regression, multinomial experiments, contingency tables and analysis of variance. A statistical software package is used. Designed for students in a variety of fields that rely on regular statistical analysis in decision-making. Fulfills General Education requirement in mathematics. Prerequisite: Placement in MAT-215 or successful completion of MAT-100 or MAT-103 is recommended. [3 credits]

#### **MAT-243 Linear Algebra**

Studies systems of linear equations and their respective solution sets. Material covered has use in such fields as physical and biological science, business, economics, computing and cryptography. Topics include matrices, vector spaces, linear transformations, determinants, eigenspaces and approximation techniques. Prerequisite: MAT-110 or MAT-211. [3 credits]

#### **MAT-3XX Intermediate Statistics**

Explores the topics and techniques covered in MAT 215 Basic Statistics from a theoretical viewpoint, including sampling distributions, estimation, hypothesis testing, and modeling. Prerequisite: MAT-215 and MAT-311. [1 credit]



**MAT-311 Theory of Probability**

Analyzes combinatorial methods; probability and sample spaces; random variables and their distributions {discrete and continuous}; moment generating functions; and the relation between probability and statistics. Probability exposes students to the diverse possible applications in such fields as mathematics, science, engineering, psychology, social sciences and management science. Prerequisite: MAT-212. [3 credits]

**MAT-3XX Financial Mathematics**

Explores the fundamental concepts of financial mathematics. Topics include present value, annuities, loan repayment, valuation of bonds, general cash flows and portfolios, immunization, interest rate swaps, and determinants of interest rates. This course is intended to prepare students for the Society of Actuaries Financial Mathematics exam. [3 credits]

**MAT-425 Simulation and Modeling**

Considers mathematical models and their applications. Emphasizes model constructions to promote student creativity and to demonstrate the artistic nature of model building, including the ideas of experimentation and simulation. Prerequisite: MAT-212. [3 credits]

**ECO-211 Introduction to Macroeconomics**

Focuses on the United States economy and its relations with the world. Examines how interactions among consumers, businesses, government and the rest of the world impact economic growth, inflation, unemployment and business cycles. Investigates the impact of monetary and fiscal policies on the overall performance of the economy. Fulfills General Education requirement in social science. [3 credits]

**ECO-212 Introduction to Microeconomics**

Examines the manner in which prices are determined and limited resources are allocated efficiently through mastery of basic supply and demand. Considers the behavior of producers and consumers under various competitive conditions. Assesses the role of government in responding to market failures. Fulfills General Education requirement in social science. [3 credits]

**BUS-253 Financial Accounting**

Introduces principles and practices leading to the preparation of a balance sheet, income statement and statement of cash flow. Presents the basics of accounting principles and its applications in the business world. The course explores the concepts and techniques of accounting for individual proprietorships and corporations. [3 credits]

**BUS-321 Corporate Financial Management**

Emphasizes the foundation areas of finance to educate students in financial decision making. Introduces concepts including time value of money, net present value and alternative measures used in financial decision making, financial ratio analysis, capital budgeting, cost of capital, and asset valuation. Prerequisites for Business majors: BUS-253, BUS-254. Prerequisites for International Business majors: BUS-253. Recommend completion of General Education requirement in math prior to enrolling. [3 credits]

**CST-171 Programming Concepts**

Introduces computer programming using the Python programming language. Emphasizes programming structures such as decisions, repetitions, sub procedures, functions, and arrays using program design with object-oriented concepts. Students learn to write a variety of program types



to meet various business needs. Satisfies the General Education technological competency requirement. [3 credits]

### **CST-295 C++ Object-Oriented Programming**

Introduces object-oriented programming including objects, classes, inheritance and polymorphism. Includes high-level structures such as pointers and arrays as well as data structures with stacks and queues. Prerequisite: CST-171 or MAT-211. Satisfies the General Education technological competency requirement. [3 credits]

Upper-Level Elective Course may be chosen from:

### **MAT-301 Abstract Algebra**

Considers groups, rings and fields with emphasis on group theory. Topics include modulo groups, cyclic groups, permutation groups, rings, integral domains and fields, isomorphism and homomorphism, and the Fundamental Theorem of Homomorphism for groups and rings. Prerequisite: MAT-243. [3 credits]

### **MAT-303 Analysis**

Introduces the theory that underlies the Calculus. Topics include cardinality, the Completeness Axiom and the topology of the real numbers, convergence of sequences, limits and continuity, the derivative and the Mean Value theorem, convergence of infinite series, sequences and series of functions. Prerequisite: MAT-213. [3 credits]

### **BUS-334 Teamwork and Negotiation**

Analyzes the dynamics, structure and function of teams in businesses and other organizations. Examines the framework and components of conflict resolution and negotiation in both organizational and personal situations. Learners will assess and strengthen key interpersonal skills. This course utilizes active learning pedagogy extensively including role plays, small group exercises, and simulations. [3 credits]

### **BUS-451 Women in Leadership**

Evaluates opportunities, issues and complexities that women face in the workplace. Analyzes differences between gender style and content in communications and behavior; critiques societal expectations of women and men in the workplace and in leadership roles; connects management and leadership precepts through the lens of gender; examines leadership attributes through nontraditional sources. Cross-listed as a graduate course to promote co-mentoring and networking. Prerequisite: Junior standing or permission of chair; applies to Women's College students only. Fulfills General Education requirement in gender studies. [3 credits]

### **BUS-484 Investment Management**

Emphasizes the foundation areas of investment management, including securities markets, stock and bond valuation, portfolio theory, the efficient market hypothesis and investment decision making. Students will complete a research project as well as build a diversified investment portfolio for a hypothetical client. Projects involve written and oral reports. Prerequisites BUS-225, BUS-321. [3 credits]

### **BUS-485 Advanced Financial Management**

Provides in-depth analysis of financial management decisions and decision-tools. Topics may include capital structure and capital issuance, dividend policy, corporate financial planning, derivatives for hedging stock volatility, derivatives for hedging interest rate risk and financial institutions. Students will complete a research project and develop strategies to manage an external environment challenge. Projects involve written and oral reports. Prerequisites: BUS-225, BUS-321. [3 credits]

### **ECO 311 Applied Macroeconomics**

Examines data related to economic, finance and international indicators. Applies macroeconomic theory to assess the current state of the economy and to forecast economic activities in the near future. Evaluates current economic policies in light of the economic forecast. Prerequisite: ECO-211. [3 credits]

5. Discuss how general education requirements will be met, if applicable.

Students will complete the new University General Education program which will take effect in fall 2021.

Broadly, the course requirements address these competencies: thinking critically and analytically; communicating creatively and effectively; investigating through scientific and quantitative reasoning; pursuing meaning, purpose, and well-being; understanding and valuing diverse identities and perspectives; and becoming an engaged citizen.

The students will be required to enroll in courses representing these disciplines:

- First-Year Seminar on Perspectives on Education and Culture (3 credits)
- College Writing (3 credits)
- Fundamentals of Oral Communication (3 credits)
- Modern Foreign Language (3 to 6 credits, based on placement at 102 level or above)
- One course at the 100-level in the natural sciences with laboratory (4 credits)
- One course in mathematics at the 100- or 200-level (3 credits)
- One religious studies course at the 100-level (3 credits)
- One philosophy course at the 100- or 200-level (3 credits)
- One course in social science at the 100- or 200-level (3 credits)
- One course in literature at the lower-level designated for general education (3 credits)
- One course in history designated at the lower-level for general education (3 credits)
- One course in studio art, art history, music or film designated to meet the lower-level fine arts requirement (3 credits)
- One course selected in the area of wellness/physical education (1 credit)

6. Identify any specialized accreditation or graduate certification requirements for this program and its students.

For this undergraduate program, the *awarding of the degree* is not contingent on earning a specific certification. However, to garner an entry-level position as an associate of the Society of Actuaries the student will need to pass two certification exams in Financial Mathematics and Probability after completing the designated NDMU curriculum. The students will satisfy



the three Validation by Educational Experience (VEE) requirements by successfully completing the required courses.

Course details are provided in Section G.4.

The courses are:

- Introduction to Macroeconomics
- Introduction to Microeconomics
- Basic Statistics
- Intermediate Statistics
- Theory of Probability
- Financial Mathematics
- Financial Accounting
- Corporate Financial Management

7. If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

Not applicable.

8. Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management systems, availability of academic support services and financial aid resources, and costs and payment policies.

Should the degree program be approved, the University Website will immediately add program requirements and curriculum information. The enrollment management counselors will be provided with training as to how to best discuss this major with students and their families.

Every student receives a degree requirement check sheet at the time of registration and again at the time of declaration of major. Under the supervision of the dean and assistant dean for academic success, every faculty academic advisor maps a program of study with each student, not only for the semester at hand but also projections to degree completion. Students may track their respective degree progression.

Every student will receive specific information on subject-area tutoring from the assistant dean's office. All students are provided with mandatory training on uses of the computer laboratories and the learning management system. Help desk assistants and peer tutors assist with technology and assignment requirements. Furthermore, we provide free, 24-7-365 online tutoring through SmarThinking for all students.

One-on-one financial counseling is provided by the Financial Aid Office by appointment. The program of financial literacy initiated in academic year 2019-2020 will be available to these students to support their learning and confidence in navigation of their financial affairs.

One concern that must be addressed through academic advising early on is the certification process for actuaries and the long career path (six years or more) required to complete all the examinations to be fully qualified credentialed.

9. Provide assurance and any appropriate evidence that advertising, recruiting and admissions materials will clearly and accurately represent the proposed program and the services available.

The admissions team, the faculty, the department chair, and the dean generate suggestions as to content of materials. Accuracy of information on services and academic requirements is scrutinized.

Prior to final production, marketing and promotional materials for all media forms are again reviewed by the enrollment management staff, the University marketing specialist, the registrar, the department chair and the school dean. Such messaging is prepared during the time the Higher Education Commission is reviewing the program proposal.

The Provost authorizes the public release of program information when Commission approval of the program is received.

**H. Adequacy of Articulation**

1. If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements.

There are no articulation or partnership agreements in place for this program.

**I. Adequacy of Faculty Resources (as outlined in COMAR 13B.02.03.11).**

1. Provide a brief narrative demonstrating the quality of the program faculty. Include a summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full time, part time, adjunct) and the course(s) each faculty member will teach in the proposed program.

Seven full-time faculty will be responsible for developing and delivering courses in the program. The curriculum will be planned collaboratively across academic departments. Faculty teaching in the program have terminal degrees in the field of expertise. Additionally, participating faculty have professional experience in the corporate business and finance sectors.

Name	Terminal Degree	Academic Appointment	Status	Courses to be Assigned
Ademar Bechtold	Ph.D. Economics	Professor of Economics	Full-Time	ECO-211 Intro to Macroeconomics ECO-212 Intro to Microeconomics ECO-311 Applied Macroeconomics



Larry Beyer	MBA	Assistant Professor of Business	Full-Time	MAT-3XX Financial Mathematics BUS-253 Financial Accounting BUS-321 Corporate Financial Management BUS-484 Investment Management BUS-485 Advanced Financial Management
Charles Buehrle	Ph.D. Mathematics	Associate Professor of Mathematics	Full-Time	MAT-211 Calculus I MAT-212 Calculus II MAT-213 Calculus III MAT-315 Differential Equations
Deborah Calhoun	Ph.D. in Education	Professor of Business	Full-Time	BUS-334 Teamwork and Negotiation BUS-451 Women in Leadership
Alix Chaillou	Ph.D. in Mathematics	Associate Professor of Mathematics	Full-Time	MAT-243 Linear Algebra MAT-301 Abstract Algebra MAT-303 Analysis MAT-425 Simulation and Modeling
Kristyanna Erickson	Ph.D. in Mathematics	Associate Professor of Mathematics	Full-Time	MAT-215 Basic Statistics MAT-311 Theory of Probability MAT-3XX Mathematical Statistics Extension
Kyongil Yoon	Ph.D. in Computer Science	Associate Professor of Computer Studies	Full-Time	CST-171 Programming Concepts CST-295 C++ Programming

2. Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidence-based best practices, including training in

a) Pedagogy that meets the needs of the students

Under the new NDMU general education schema, and with implementation of new pedagogical practices under a University plan to highlight women's needs, (titled *Imprint*) faculty are implementing new strategies for experiential and collaborative learning. The Office of the Provost provides in-service training in such approaches at a Faculty Institute held at the beginning of each semester. The Faculty Institutes have also focused on meeting the needs of Notre Dame's increasingly diverse undergraduate population.

Within the faculty for the proposed major are three members who are specialists in mathematics pedagogy and team-based teaching. They will be the leaders in design of the curriculum to support actuarial science students.

b) The learning management system

The University will implement a new LMS for academic year 2020-2021. The decision of vendor is pending based on the ability of the next LMS to merge the two University

systems already in operation. At the current time, the two complementary LMS systems used at NDMU are Blackboard Open LMS (formerly Joule) and Moodle (for fully online programs).

The University provides online tools and face-to-face LMS training for faculty under the direction of a professional staff member who serves as an expert resource for them. For online courses, the faculty member of record is required to complete the Quality Matters course *Teaching Online*. Faculty who are already credentialed by QM as peer reviewers are exempt from this course as are those who have received comparable training at other institutions. Faculty may not teach online courses until completing the QM training course. Faculty who are designated course developers must complete either the QM *Developing Your Online Course* or *Improving Your Online Course* or a comparable course with Wiley, *Developing Online Courses*.

- c) Evidence-based best practices for distance education, if distance education is offered

There are no current plans to offer this curriculum through synchronous distance learning.

**J. Adequacy of Library Resources (as outlined in COMAR13B.02.03.12)**

1. Describe the library resources available and/or the measures to be taken to ensure resources are adequate to support the proposed program.

Within their joint library, Notre Dame of Maryland University and Loyola University Maryland have sufficient resources as reviewed by their respective accrediting bodies for business (ACBSP and AACSB). Both institutions sponsor undergraduate and graduate degrees in business-related areas. As noted in the curriculum review section of this proposal, there are only two completely new courses to be included in the NDMU requirements. The collection of databases, online resources, journals and books is comprehensive and covers the areas of finance, accounting, statistics and probability.

Since its opening in 1973, the Loyola/Notre Dame Library has served as a critical resource for outstanding teaching and scholarship. Notre Dame and Loyola have recently completed a joint renovation and expansion project. The results of this project are expanded use of technology for teaching and learning; accommodation of greater numbers of students, faculty and community patrons; and vibrant, vital center for scholarly exploration and achievement.

The Loyola/Notre Dame Library is open 7 days a week during the fall, spring, and summer semesters. The Loyola Notre Dame Library provides information services and resources to support the academic programs and educational concerns of Notre Dame of Maryland University and Loyola University Maryland. Through the Library's website, faculty, students and staff may access an extensive array of books, journals, databases, and streaming video to support research, teaching, and learning.

The library's collection consists of 455,000 volumes, 1,421 print and 22,126 electronic periodical subscriptions, and 39,000 media items. The library's web site is the gateway to a wealth of information, including over 120 online databases, which provide access to over



300,000 journals, magazines, and newspapers in print and electronic formats. The Loyola Notre Library's Online Journal holdings are substantial, including 143 peer reviewed Journal titles.

Additionally, the Library provides access to collections at other partner libraries:

- The University System of Maryland and Affiliated Institutions consortium provides access to over 9 million items at 17 member libraries.
- The Eastern Academic Libraries Trust (EAST), a print archive that guarantees access to 6 million volumes via Interlibrary Loan.

#### Assistance Provided

- Students, faculty and staff may request help in-person, via email, instant messaging, and telephone.
- Online chat reference is available 24 hours a day, seven days a week.
- Information about copyright is available through a resource guide, workshops and individual consultations provided by a librarian in the Copyright Information Center.

#### Other Library Resources

- 693 individual seats are available for studying in addition to the learning spaces below:
  - a 100 seat auditorium
  - Two computer instructional labs: Lab A has 20 seats; Lab B has 30 seats
  - The Collaboratory at the Library, an active learning space that accommodates up to 22 students in a flexible environment
  - a 24 seat screening room cyber café and a multi-functional gallery used for events and flexible study space group study areas
  - seminar rooms
  - 91 computers with Microsoft Office and access to the Internet
  - Adaptive technology mainstreamed throughout the Library to provide access for disabled users
  - Makerspace, a technology-rich environment that fosters creation, innovation, and collaborative learning.

Databases that the library currently provides to support this major include:

A key word search of Actuarial Science in the Loyola/Notre Dame Library for peer reviewed articles, book and journals (2010-2020) produces 24,957 search results, whereby 21,346 are journal articles; 1,552 are magazine articles; 918 are conference materials; and 501 are books.

A modest amount of funding in alternate years will be provided to update the collection with some additional resources for actuarial science as needed.

**K. Adequacy of Physical Facilities, Infrastructure, and Instructional Equipment (as outlined in COMAR 13B.02.03.12)**

1. Provide an assurance that physical facilities, infrastructure and instructional equipment are adequate to initiate the program, particularly as related to spaces for classrooms, staff and faculty offices and laboratories for studies in the technologies and sciences.

The institution has a sufficient infrastructure for equipment and facilities for this major. Complementary needs for instruction in computer science, mathematics, accounting, economics and finance must continue to be met. Resources in computer hardware and software will be refreshed and enhanced over time in alignment with the technology strategic plan and the renovation of Knott Science Center.

2. Provide assurance and any appropriate evidence that the institution will ensure students enrolled in and faculty teaching in distance education will have adequate access to:

- a) an institutional electronic mailing system

While the institution does not plan for distance education delivery for this program, all students and faculty, have a University e-mail account to carry out electronic communications with students.

- b) a learning management system that provides the necessary technological support for distance education

NDMU has technology, support, and expertise to offer courses across a variety of modalities including face to face and hybrid. There is a staffed Faculty Resource Center and instructional course design support. In addition, NDMU has a state-of-the-art global classroom that supports superior web conferencing, internet collaboration across institutions, mobile screen sharing, HD resolution, video collaboration, and the ability to build collaboration-enabled Zoom conference rooms. NDMU supports a Moodle-based Course/Learning Management System (C/LMS) where faculty may deposit course materials, facilitate technology enhanced or online instruction, quizzes and exams, host chat and discussion board collaboration, and engage with students outside of the classroom to enrich the learning experience.

The entire campus hosts a wireless community to support mobile and web-based collaboration and communication. NDMU also supports learners with a well-staffed and supportive technology helpdesk.

**L. Adequacy of Financial Resources with Documentation (as outlined in COMAR 13B.02.03.14)**

<b>Table 1: Program Resources</b>					
<b>Revenue Categories</b>	<b>Year 1 2020-2021</b>	<b>Year 2 2021-2022</b>	<b>Year 3 2022-2023</b>	<b>Year 4 2023-2024</b>	<b>Year 5 2024-2025</b>
1. Reallocated Funds	\$0	\$0	\$0	\$0	\$0
2. Tuition/Fee Revenue (c + g below)	\$114,885	\$236,670	\$325,024	\$418,470	\$517,224



a. Number of F/T Students	3	6	8	10	12
b. Annual Tuition/Fee Rate	\$38,295	\$39,445	\$40,628	\$41,847	\$43,102
c. Total F/T Revenue (a x b)	\$114,885	\$236,670	\$325,024	\$418,470	\$517,224
d. Number of P/T Students	\$0	\$0	\$0	\$0	\$0
e. Credit-Hour Rate	\$0	\$0	\$0	\$0	\$0
f. Annual Credit-Hour Rate	\$0	\$0	\$0	\$0	\$0
g. Total P/T Revenue (d+e+f)	\$0	\$0	\$0	\$0	\$0
3. Grants, Contracts & Other External Resources	\$0	\$0	\$0	\$0	\$0
4. Other Sources, fees \$1,380 per year	\$4,140	\$8,280	\$11,040	\$13,800	\$16,560
TOTAL (Add 1-4)	\$119,025	\$244,950	\$336,064	\$432,270	\$533,784

Narrative:

1. No reallocated funds are incorporated into the program budget.
2. The proposed 2020-2021 tuition rate will be reviewed by the Board of Trustees in March 2020. Projections for years two through five assume a 3 percent increase.
3. Enrollment is based on full-time students in the Women's College.
4. Other sources (item 4) include annual fees charged to all Women's College students.

Expenditure Categories	Year 1 2020-2021	Year 2 2021-2022	Year 3 2022-2023	Year 4 2023-2024	Year 5 2024-2025
1. Faculty (adjunct) (b + c below)	0	\$2,700	\$5,400	\$5,400	\$5,400
a. Number of FTE	0	0	0	1	1
b. Total Salary (adjunct)	0	\$2,700	\$5,400	\$5,400	\$5,400
c. Total Benefits	0	0	0	0	0
2. Administrative Staff (b+c)	0	0	0	0	0
a. Number of FTE	0	0	0	0	0
b. Total Salary	0	0	0	0	0
c. Total Benefits	0	0	0	0	0
3. Support Staff (b+c)	0	0	0	0	0
a. Number of FTE	0	0	0	0	0
b. Total Salary	0	0	0	0	0
c. Total Benefits	0	0	0	0	0
4. Technical Support and Equipment	0	0	\$5,000	0	0

5. Library	0	0	\$3,000		\$3,000
6. New or Renovated Space	0	0	0	0	0
7. Other Expenses	0	\$2,500	\$850	0	0
8. TOTAL (Add 1-7)	0	\$5,200	\$14,250	\$5,400	\$8,400

Narrative:

1. Faculty instructing the program will consist of full-time faculty with additional adjunct faculty. Full-time faculty teaching load is included in their teaching load and the faculty salary included here represents adjunct stipends.
2. Technical support includes software and hardware upgrades will be applied every third year, consistent with best practices.
3. Library expenses will include materials specific to actuarial science added to the collection to augment the already strong holdings in business (economics, accounting, finance and risk).
4. Space requirements are currently adequate.
5. Other expenses include faculty stipends for the development of two new courses for the major.

**M. Adequacy for Provisions for Evaluation of Program (as outlined in COMAR 13B.02.03.15)**

1. Discuss procedures for evaluating courses, faculty and student learning outcomes.

Students enrolled in courses delivered via all modalities complete an online anonymous course evaluation. The course evaluation invites student comment on the learning experience, plus the pedagogy and design of the course.

Faculty receive the results of such evaluations after semester grades are submitted and are asked to review the information and to explain any need for course improvements in writing. Department chairs review the course evaluations, comment on the faculty member's findings as part of the annual formative evaluation process, and make suggestions to the faculty member. The school dean reviews all course evaluations as part of the yearly faculty evaluation process and may comment as necessary in writing as part of the process. The chair and the dean assist the faculty member in setting goals for teaching improvement.

As part of the two-year probationary faculty evaluation process, department chairs observe courses at least once each semester and counsel the faculty member regarding readiness for promotion and tenure. These "early-on" conversations are formative in nature and are intended to better prepare faculty for advancement in rank.

As detailed in section G.3, student learning outcomes will be assessed at the course and program levels based on the specific analytical and computational/quantitative competencies required of actuaries. Specific assessment tools (e.g., computer programming assignments, case studies, problem sets) will be used within the curriculum to assure student progress through the major. The certification tests provided by an external body will provide useful comparative data on program outcomes and guidance for curriculum change.

2. Explain how the institution will evaluate the proposed program's effectiveness, including assessment of student learning outcomes, student retention, student and faculty satisfaction and cost-effectiveness.



Learning outcomes assessments for all programs are submitted annually to the School of Arts, Sciences and Business Assessment Committee. The findings of that Committee are submitted to the dean and the University Assessment Committee. The University Assessment Committee reviews the integrity and reliability of the process and identified needs as well as makes budget recommendations to the University Budget Committee.

At times, specific needs of an academic support nature, staffing or hard resources such as technology may result from this analysis. Resource allocation requests to improve achievement of learning outcomes are reviewed by the Dean, the University Assessment Committee and the Provost. Final decisions related to budget allocations are reached via the deliberations of the University Budget Committee consistent with parameters set by the Board of Trustees.

For new degrees, progress in reaching enrollment benchmarks and developing program courses is reported regularly to the School Curriculum Committee and the Faculty Senate. Oversight is provided at scheduled meetings of the chair/program academic leader with the dean and Provost.

A more comprehensive review of all aspects of a program and its contribution to the University and School missions takes place every five years. In this process, longitudinal enrollment patterns, issues of student retention, cost effectiveness, and faculty retention and satisfaction are underscored. Long-term resourcing and potential for growth are scrutinized. Of course, student academic achievement is central. The program department faculty, the School Curriculum Committee, the School Assessment Committee, the Offices of the Provost and the Dean, and the University Assessment Committee all participate in various stages of this process.

**N. Consistency with the State’s Minority Student Achievement Goals (as outlined in COMAR 13B.02.03.05)**

1. Discuss how the proposed program addresses minority student access and success and the institution’s cultural diversity goals and initiatives.

Notre Dame is proud of the diversity of its undergraduate population and its particular Mission focused on meeting the needs of the underserved in the City and the surrounding region. With 63 percent minority students in the Women’s College and many of those students first-generation, the University has instituted programs focused on both access and success.

Since 2010, the institution has received multiple grants from the state and private foundations to support its Trailblazers initiative for first-generation students, a four-year program covering early college adjustment to career readiness. Student Trailblazers have access to enhanced academic support services, college acculturation seminars and career planning programs, as well as financial literacy seminars attended with their families. This model is unique in that like programs at other institutions are typically for first-year students only. Notre Dame has a strong record of accomplishment that demonstrates the success of its opt-in Trailblazers

program. Trailblazers are better retained and have GPAs equal to or above first-generation students who do not join the program. Approximately 150 students participate in the program annually.

The University will use new Title III funding and other resources to incorporate what it has learned into expanded services across campus for all students at risk for persistence to degree.

Actuarial science will be a challenging major requiring serious academic focus. The University wants to invite diverse groups of students into this major so that they may be well represented in this profession. Success will depend on academic support as well as services that help students address financial and personal stressors. Notre Dame is positioned to deliver on these needs.

**O. Relationship to Low Productivity Programs Identified by the Commission**

1. If the proposed program is directly related to an identified low productivity program, discuss how the fiscal resources (including faculty, administration, library resources and general operating expenses) may be redistributed to this program.

Institutional resources will not be redistributed to support this program. Establishing this major will not result in reduction of fiscal resources for another program. Courses in the program are already offered with the exception of two new courses to be developed, and faculty are already deployed for those classes.

**P. Adequacy of Distance Education Programs (as outlined in CMAR 13B.02.03.22)**

This section is not applicable to the program proposal. Notre Dame will not be providing this program via distance education.