

**MEMORANDUM OF UNDERSTANDING**  
**HARFORD COMMUNITY COLLEGE & TOWSON UNIVERSITY**  
**September 25, 2017**

**MATHEMATICS, Actuarial Science and Risk Management Concentration B.S. Degree**

Harford Community College, Bel Air, Maryland, and Towson University, agree to follow the articulation of courses outlined in the articulation (course equivalency) document, for completion of requirements for the Bachelor of Science degree in Mathematics (Actuarial Science and Risk Management Concentration) (Attachment A), which is attached to, and incorporated by reference into, this Memorandum of Understanding (MOU). The following principles guide the operation of this MOU, with the requirements for transfer in specific curricula set forth in Attachment A.

1. Towson University will accept a maximum number of 64 credits from Harford Community College as outlined in the Attachment A. The number of transferable credits specific to this program is reflected in Attachment A.
2. Students who have completed the Associate of Science Degree in the Mathematics program at Harford Community College may transfer into Towson University's Mathematics program with junior standing provided that the student has completed all courses identified on Attachment A (which is attached to, and incorporated by reference into, this MOU) with a cumulative GPA of 2.00 or higher. Courses completed at Harford Community College with 300 or 400 level Towson University course equivalencies will transfer as lower-level credit but will satisfy course content as indicated.
3. Only courses in which a grade of C (2.00) or better is earned will apply toward the major at Towson University.
4. In accordance with the MHEC transfer policy pertaining to general education requirements, Towson University will accept the completion of Harford Community College's general education requirements (GenEds) and students will be required to complete courses at Towson University to satisfy the remaining *University Core* requirements as shown in Attachment A.
5. Towson University recognizes college-level experiential learning gained through previous work, military and/or volunteer service or life experience. Credit for prior learning may also be established through course challenge or standardized credit by examination.
6. Harford Community College students transferring to Towson University will be given every consideration for financial aid and will be eligible to compete for academic scholarships upon entrance to Towson University subject to stated scholarship deadlines.
7. Both Harford Community College and Towson University agree to work together to facilitate the transfer of students from Harford Community College to Towson University to work cooperatively to insure the high quality of the programs at the respective

institutions. Transfer of students will be in accordance with policies and procedures of both institutions, as they may be amended from time to time.

8. This MOU will be in effect initially for ten years, beginning *fall 2017*, with a review every two years by both parties. Any revisions the parties deem necessary must be evidenced in writing and signed by the authorized officials of each institution. The MOU may be terminated by either party for due cause and after adequate notice of not less than six months is given to the other party.
9. Towson University will establish procedures to provide information on the academic progress of Harford Community College students enrolled as part of this MOU.
10. This MOU, when signed, constitutes the entire agreement between the parties and supersedes all prior agreements and understandings between the parties respecting the matter hereof.

HARFORD COMMUNITY COLLEGE AND TOWSON UNIVERSITY



**Dr. Steven Thomas**  
Vice President for  
Academic Affairs

Date 9.29.2017



**Dr. Timothy Chandler**  
Provost and Vice-President for  
Academic Affairs

Date 10/13/17

**HARFORD COMMUNITY COLLEGE MATHEMATICS A.S. DEGREE**  
**TOWSON UNIVERSITY MATHEMATICS ACTUARIAL SCIENCE & RISK MANAGEMENT CONCENTRATION B.S. DEGREE**

| HARFORD COMMUNITY COLLEGE |   | TOWSON UNIVERSITY |                    |      |   |            |
|---------------------------|---|-------------------|--------------------|------|---|------------|
| COURSE #                  | COURSE TITLE  | CRS.              | TU EQUIVALENCY     | CORE | COMMENTS  | COURSE ID# |
| ENG 101                   | English Composition (GE)  | 3                 | TSEM 102 waived    | 1.   | Towson Seminar  | 2348       |
| MATH 203                  | Calculus I (GM)   | 4                 | ENGL 102           | 2.   | English Composition                                   | 4407       |
| CIS 102* (GH)**           | Introduction to Information Sciences (GI)                         | 3                 | MATH 273           | 3.   | Mathematics   | 13369      |
| ECON 101***               | Arts/Humanities Elective (GH)                                     | 3                 | COSC 111           | 4.   | Creativity & Creative Development                     |            |
| PHYS 204                  | Macroeconomics (GB)   | 3                 | Depends on choice. | 5.   | Arts & Humanities                                     |            |
| PHYS 203****              | Gen Phys: Vibrations, Waves, Heat, Electricity and Magnetism (GL) | 4                 | ECON 202           | 6.   | Social & Behavioral Sciences                          | 1789       |
| ECON 102*                 | Gen Phys: Mechanics and Particle Dynamics (GS)                    | 3                 | PHYS 242           | 7.   | Biological & Physical Science w/Lab                   | 6806       |
| (GB)**                    | Microeconomics (GB)   | 3                 | PHYS 10T           | 8.   | Biological & Physical Science                         | 10619      |
| (GH)**                    | Behavioral/Social Science Elective (GB) Not ECON                  | 3                 | ECON 201           | 9.   | Advanced Writing Seminar                              | 1788****   |
| PHIL 205*                 | Arts/Humanities Elective (GH)                                     | 3                 | Depends on choice. | 10.  | Metropolitan Perspectives                             |            |
|                           | Ethics (GH)   | 3                 | Depends on choice. | 11.  | The United States as a Nation                         |            |
|                           |   | 3                 | PHIL 253           | 12.  | Global Perspectives                                   |            |
|                           |   | 3                 |                    | 13.  | Diversity & Difference                                |            |
|                           |   | 3                 |                    | 14.  | Ethical Issues & Perspectives                         | 6548****   |
|                           | <b>Total CORE in Transfer</b>                                     | <b>35</b>         |                    |      |   |            |
| MATH 204                  | Calculus II   | 4                 | MATH 274           |      |   | 4408       |
| MATH 206                  | Calculus III  | 4                 | MATH 275           |      |   | 4409       |
| MATH 217                  | Linear Algebra  | 4                 | MATH 265           |      |   | 4403       |
| MATH 208                  | Elementary Differential Equations                                 | 3                 | MATH T74(374)      |      | Content equivalent - transfers as lower level credit. | 10493      |
| CSI 131                   | Computer Science I  | 4                 | COSC 236           |      | Equivalency exception for this program                | 1344       |
| ACCT 101*                 | Accounting Principles I   | 3                 | ACCT 201           |      |   | 0004       |
| ACCT 102*                 | Accounting Principles II  | 3                 | ACCT 202           |      |   | 0005       |
| PE                        | Physical Education Elective                                       | 1                 | PHEA TLL           |      |   | 10564      |
|                           | <b>Program Requirements at Harford</b>                            | <b>26</b>         |                    |      |   |            |
|                           | <b>Total Harford Program Requirements at Harford</b>              | <b>61</b>         |                    |      |   |            |
|                           | <b>Maximum Credits in Transfer</b>                                | <b>64</b>         |                    |      |   |            |

64 credit transfer maximum. 6 Core Curriculum units must be completed at Towson University: Core 9: Advanced Writing Seminar; Core 11: The United States as a Nation  
 \*General Electives: Students should choose CIS 102 (Introduction to Information Sciences); ECON 102 (Microeconomics); PHIL 205 (Ethics); ACCT 101 (Accounting I) and ACCT 102 (Accounting II) as their general electives at HCC to satisfy Core and major requirements at TU. Students who do not take these courses as recommended will need to complete additional Core and Major requirements at TU. Note that the Bachelor's degree cannot be completed in 4 years (total) if courses are not selected as outlined here.

\*\*One GB or GH course must also satisfy the Diversity requirement at HCC.

\*\*\*Students should choose ECON 101 as one of the Behavioral/Social Science General Education requirements (GB). The other Behavioral/Social Science General Education course must be in a discipline other than ECON.

\*\*\*\*Students must take both PHYS 200 and PHYS 203 to receive PHYS 241 equivalent. Students who take PHYS 203 without the lab (PHYS 200) will receive an equivalent of PHYS 10T.

\*\*\*\*\*Requires course directive for Core placement.

HARFORD COMMUNITY COLLEGE MATHEMATICS A.S. DEGREE

TOWSON UNIVERSITY MATHEMATICS ACTUARIAL SCIENCE & RISK MANAGEMENT CONCENTRATION B.S. DEGREE

**CORE REQUIREMENTS TO BE COMPLETED AT TOWSON**

**6\* UNITS**

CORE 9: ADVANCED WRITING SEMINAR

(3 UNITS)

CORE 11: THE UNITED STATES AS A NATION

(3 UNITS)

\* *Additional Core courses may be required if course selections at HCC were not made as indicated on Pg. 1 of this agreement.*

**PROGRAM REQUIREMENTS TO BE COMPLETED AT TOWSON**

**54-67 UNITS**

**REQUIRED COURSES:**

**7-8 UNITS**

MATH 267 INTRODUCTION TO ABSTRACT MATHEMATICS

(4 UNITS)

**SELECT ONE OF THE FOLLOWING:**

MATH 369 INTRODUCTION TO ABSTRACT ALGEBRA

(3-4 UNITS)

MATH 463 LINEAR ALGEBRA

MATH 473 INTRODUCTORY REAL ANALYSIS

**COURSES FOR ACTUARIAL SCIENCE AND RISK MANAGEMENT CONCENTRATION:**

**47-59 UNITS**

**REQUIRED COURSES:**

**(47 UNITS)**

FIN 331 PRINCIPLES OF FINANCIAL MANAGEMENT

FIN 333 INVESTMENTS AND EQUITY SECURITY ANALYSIS

MATH 312 THEORY OF INTEREST

MATH 331 PROBABILITY

MATH 332 MATHEMATICAL STATISTICS

MATH 337 APPLIED REGRESSION AND TIME SERIES ANALYSIS

MATH 369 INTRODUCTION TO ABSTRACT ALGEBRA

MATH 438 ACTUARIAL MODELS

MATH 439 COMPUTATIONAL PROBABILITY MODELS

MATH 442 ACTUARIAL MODEL CONSTRUCTION

MATH 448 ADVANCED ACTUARIAL MODELS

MATH 485 MATHEMATICAL FINANCE

MATH 486 RISK MANAGEMENT AND FINANCIAL ENGINEERING

MATH 498 SENIOR SEMINAR ACTUARIAL SCIENCE AND RISK MANAGEMENT

ACCT 201

(0-12 UNITS)

ACCT 202 PRINCIPLES OF FINANCIAL ACCOUNTING (If ACCT 101 was not taken at HCC)

ECON 201 PRINCIPLES OF MANAGERIAL ACCOUNTING (If ACCT 102 was not taken at HCC)

ECON 202 MICROECONOMIC PRINCIPLES (If ECON 102 was not taken at HCC)

MACROECONOMIC PRINCIPLES (If ECON 101 was not taken at HCC)

HARFORD COMMUNITY COLLEGE MATHEMATICS A.S. DEGREE  
TOWSON UNIVERSITY MATHEMATICS ACTUARIAL SCIENCE & RISK MANAGEMENT CONCENTRATION B.S. DEGREE

|                                     |                  |
|-------------------------------------|------------------|
| <u>TOTAL CREDITS TO B.S. DEGREE</u> | <u>(121-134)</u> |
| Harford Mathematics A.S. Degree     | 61               |
| Completion of Core Curriculum at TU | 6*               |
| Major Requirements at TU            | 54-67            |
| Electives at TU                     | 0                |