

MEMORANDUM OF UNDERSTANDING
CARROLL COMMUNITY COLLEGE & TOWSON UNIVERSITY
April 19, 2019

FORENSIC CHEMISTRY B.S. Degree

Carroll Community College, Westminster, 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 Forensic Chemistry (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 Carroll 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 Physical Science, Chemistry concentration program at Carroll Community College may transfer into Towson University's Forensic Chemistry 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 Carroll 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 Carroll 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. Carroll 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 Carroll Community College and Towson University agree to work together to facilitate the transfer of students from Carroll 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 2019*, 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 Carroll 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.

CARROLL COMMUNITY COLLEGE AND TOWSON UNIVERSITY



Dr. Rosalie Mince
Vice President of
Academic and Student Affairs

Date 4/23/19



Dr. Melanie Perreault
Provost and Executive Vice-President
for Academic Affairs

Date 5/1/19

CARROLL COMMUNITY COLLEGE – PHYSICAL SCIENCE, CHEMISTRY CONCENTRATION A.S. DEGREE
TOWSON UNIVERSITY – FORENSIC CHEMISTRY B.S. DEGREE

| CARROLL COMMUNITY COLLEGE | | | TOWSON UNIVERSITY (TU) | | |
|--|---|-----------|--|--|---------------|
| COURSE # | COURSE TITLE | CRS. | TU EQUIVALENCY | COMMENTS | COURSE ID# |
| General Education Applied to CORE | | | | | |
| | | | | <i>Towson Seminar Waived</i> | 13192 |
| ENGL 101 | College Writing (<i>Composition</i>) | 3 | ENGL 102 | | 2348 |
| MATH 135 | Calculus of a Single Variable 1 (<i>Mathematics</i>) | 4 | MATH 273 | Satisfies major requirement. | 4407 |
| AH | Arts and Humanities Gen Ed | 3 | Varies by choice. | | |
| AH | Arts and Humanities Gen Ed | 3 | Varies by choice. | | |
| CRIM 101 | Introduction to Criminal Justice (<i>Social & Behavioral Science</i>) | 3 | CRMJ 254 | Satisfies major requirement. | 7729 |
| SB | Social and Behavioral Science Gen Ed | 3 | Varies by choice. | | |
| CHEM 105 | Principles of General Chemistry I (<i>Biological & Physical Sciences</i>) | 4 | CHEM 131 & 131L | Satisfies major requirement. | 13097 & 13098 |
| PHYS 101 <i>or</i> PHYS 111 | Fundamentals of Physics 1 or Physics 1 for Science and Engineers (<i>Biological & Physical Sciences</i>) | 4 | PHYS 211 <i>or</i> PHYS 241 | Either course satisfies major requirement. | 6800 6805 |
| ENGL 102 | Writing About Literature (<i>Literature</i>) | 3 | ENGL TLL | | 10267 |
| BIOL 101 | Fundamentals of Biology I (<i>Program Requirement</i>) | 4 | BIOL 200 & 200L | Satisfies required course in major. | 13759 & 13760 |
| Units Applied to TU Core | | 34 | | | |
| Program Requirements/Electives | | | | | |
| CHEM 106 | General Chemistry 1 | 4 | CHEM 132 & 132L | Satisfies major requirement. | 13099 & 13100 |
| MATH 136 | Calculus of a Single Variable 2 | 4 | MATH 274 | | 4408 |
| CHEM 201 | Organic Chemistry I | 5 | CHEM T31 | Lower-level Satisfies major requirement. | 10134 |
| CHEM 202 | Organic Chemistry II | 5 | CHEM T32 | Satisfies major requirement. | 10135 |
| PHYS 102 <i>or</i> PHYS 212 | Fundamentals of Physics 2 or Physics 2 for Science and Engineers | 4 | PHYS 212 <i>or</i> PHYS 242 | Either course satisfies major requirement. | 6801 6806 |
| Elective | General Elective | 4 | Varies by choice. | | |
| Program Requirements Applied | | 26 | Core Transfer Package: CORE Package 3 | | |
| Total Units Completed at Carroll CC | | 60 | | | |
| Maximum Units in Transfer | | 64 | | | |

About This Document:

Please refer to page 2 of this document for detailed information regarding course selection, degree completion, and transfer planning that apply to the associate's degree.

Pages 3 & 4 outline the remaining degree requirements to be completed at TU upon completion of the associate's degree. If students do not complete the courses outlined in this agreement, completion of the bachelor's degree in 120 credits and 2 years may not be guaranteed.

CARROLL COMMUNITY COLLEGE – PHYSICAL SCIENCE, CHEMISTRY CONCENTRATION A.S. DEGREE
TOWSON UNIVERSITY – FORENSIC CHEMISTRY B.S. DEGREE

Carroll CC Degree Completion Information

Please note the following information regarding general education requirements:

1. Students must take CRIM 101 Introduction to Criminal Justice as one of their Social & Behavioral Science general education courses because it will transfer as CRMJ 254, which is a foundation course in the major and a prerequisite for some upper level courses within the major.
2. Any general education courses without a specified course to take may be satisfied by a course of the student's choosing. Students should refer to the Carroll CC catalog for a list of approved general education courses.
3. A core package will be granted to recognize the completion of a general education program at the community college without further review. The Carroll CC degree requires 30 credits of general education credits, and TU will also recognize the program requirement of BIOL 101 as a general education course in order to grant students a Core Package 3. Students must only complete two additional Core Curriculum requirements within the bachelor's degree: Core 9 Advanced Writing Seminar and Core 14 Ethical Perspectives. If students choose to complete an ethics course as part of their general education courses at Carroll CC, then they may receive a different core package and be required to complete an alternative Core requirement.

Please note the following information regarding program requirements and degree completion planning:

1. The courses CHEM 201 Organic Chemistry 1 and CHEM 202 Organic Chemistry 2 will transfer as CHEM T31 and CHEM T32. These equivalencies represent lower-level credit for the courses CHEM 331 and CHEM 332. The credit for CHEM T31 and T32 will satisfy the major's requirement for CHEM 331 & 332, but they will not count toward the university's degree requirement of 32 upper-level units.
2. The 4-credit general elective may be completed by any course a student chooses. However, if students must complete precalculus prior to enrolling in MATH 135, then the credit for either MATH 123 & 124 or MATH 130 can count toward the elective credit.
3. Certain courses at Carroll CC may only be offered once a year in the spring or fall term. Students should consult the Carroll CC catalog for a recommended course sequence.

Please note the following information about planning ahead for the Forensic Chemistry major:

1. The Forensic Chemistry major is offered in three separate tracks: general forensic science, trace evidence/drug analysis, and DNA. These tracks provide the student with options to prepare for the specialized areas of forensic science in the professional work force or for graduate programs.
2. Students are typically expected to decide upon their track of study by the end of their sophomore year. Carroll CC students may contact the Department of Chemistry if they have any questions or need advisement on choosing a track. Students can find details on the learning outcomes and career goals of each track in the TU catalog or on the Department of Chemistry website.
3. Because forensic science is part of the criminal justice system, personal honesty, integrity, and scientific objectivity are paramount. Those seeking careers in this field should be aware that background checks similar to those required for law enforcement officers are likely to be a condition of employment.

CARROLL COMMUNITY COLLEGE – PHYSICAL SCIENCE, CHEMISTRY CONCENTRATION A.S. DEGREE
TOWSON UNIVERSITY – FORENSIC CHEMISTRY B.S. DEGREE

DEGREE REQUIREMENTS TO BE COMPLETED AT TU:

| | | |
|--|---|--------------------|
| CORE CURRICULUM REQUIREMENTS: | | 6 units |
| Core 9 | Advanced Writing Seminar (<i>CHEM 301 required in major</i>) | 3 units |
| Core 14 | Ethical Perspectives | 3 units |
| REQUIRED COURSES FOR ALL TRACKS | | 17 units |
| CHEM 210 | Analytical Chemistry | 5 units |
| CHEM 301 | Professional Ethics for Scientists (<i>Counted above in Core 9</i>) | <i>(3 units)</i> |
| CHEM 351 | Biochemistry I | 3 units |
| FRSC 367 | Forensic Chemistry | 3 units |
| FRSC 368 | Professional Practices in Forensic Science | 3 units |
| FRSC 440 | Forensic Science, Emergency Medicine, and Death Analysis | 3 units |
| ANCILLARY COURSES REQUIRED FOR ALL TRACKS | | 15 unit |
| ANTH 357 | Introduction to Forensic Crime Analysis | 3 units |
| ANTH 457 | Advanced Forensic Investigation | 3 units |
| CRMJ 384 | Advanced Criminal Law | 3 units |
| MATH 237 | Elementary Biostatistics | 4 units |
| FORENSIC CHEMISTRY TRACK | | 18-21 units |
| Course requirements vary by track. | | |
| 1) General Forensic Science Track: | | 21 units |
| BIOL 309 | Genetics | 3 units |
| BIOL 409 | Molecular Biology | 4 units |
| CHEM 310 | Instrumental Analysis | 4 units |
| CHEM 345 | Principles of Physical Chemistry | 3 units |
| FRSC 363 | Chemistry of Dangerous Drugs | 3 units |
| FRSC 467 | Forensic Analysis Chemistry | 3 units |
| 2) Trace Evidence/Drug Analysis Track: | | 18 units |
| CHEM 310 | Instrumental Analysis | 4 units |
| CHEM 345 | Principles of Physical Chemistry | 3 units |
| CHEM 372 | Physical Chemistry Laboratory | 2 units |
| CHEM 480 | Chemical Toxicology | 3 units |
| FRSC 363 | Chemistry of Dangerous Drugs | 3 units |
| FRSC 467 | Forensic Analysis Chemistry | 3 units |
| 3) DNA Track: | | 20 units |
| BIOL 309 | Genetics | 3 units |
| BIOL 409 | Molecular Biology | 4 units |
| CHEM 356 | Biochemistry Laboratory | 2 units |
| BIOL 410 | Molecular Biology Laboratory | 2 units |
| MBBB 301 | Intro to Bioinformatics | 4 units |
| FRSC 420 | Body Fluid Analysis | 4 units |

CARROLL COMMUNITY COLLEGE – PHYSICAL SCIENCE, CHEMISTRY CONCENTRATION A.S. DEGREE
TOWSON UNIVERSITY – FORENSIC CHEMISTRY B.S. DEGREE

ADDITIONAL MAJOR INFORMATION:

- 1) *FORENSIC CHEMISTRY MAJOR REPEAT POLICY*: This policy applies to TU coursework only. A student may repeat no more than two courses, including multiple attempts at the same course, required for the Forensic Chemistry major. This includes all foundation courses and required courses for the major. Students exceeding this limit may not be permitted to register for additional Chemistry courses.
- 2) *INTERNSHIP OPPORTUNITIES & REQUIREMENTS*: While an internship is not required for this major, the opportunity to earn credit for internships is available to students. Any student who wishes to earn internship credit for work in a crime laboratory must have a GPA of 3.00 or higher, must have attained junior class rank, and must pass a background investigation.

ADDITIONAL BACHELOR'S DEGREE REQUIREMENTS:

- A C (2.0) or higher is required in all major courses and prerequisites
- A cumulative grade point average (GPA) of 2.0 is required
- 32 units of the bachelor's degree must be completed at the upper level (courses numbered 300 or above)

TOTAL UNITS TO B.S. DEGREE:**120 UNITS**

Carroll CC Physical Science, Chemistry Concentration A.S. Degree

60

Completion of Core Curriculum at TU

6

TU Forensic Chemistry Major

50-53

General Electives

1-4