

Science
Department
Student Handbook
2015-2016

Biology / Biological Sciences
Biology / Molecular Biology &
Biotechnology
Biology / Health Sciences
Biology / Pre-Medicine
Biology / Pre-Dental
Chemistry

Science Department Student Handbook 2015-2016

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Welcome

Dear Student,

Welcome to the Science Department. As scientific discovery and technology continues to advance at an astonishing rate, we think you'll find this field will always challenge and amaze you. It is truly an exciting time to be at Cabrini and in the Science Department as well. We've designed our Biology and Chemistry majors to provide you with flexibility in selecting the track/courses you want to meet your career goals. Our lab and classrooms are housed in the Antoinette Iadarola Center for Science Education and Technology. To keep pace with the ever evolving field of science we are continually working on our curriculum design and delivery to keep up with best practices and to ensure that our curriculum is current. We have ~10:1 ratio of science majors to science faculty, which allows for superb student-faculty interaction and a personalized approach to your education. In addition to our full-time faculty, we have experts teaching specialized courses part-time within the department, as well as opportunities to take courses at our 8 affiliate institutions.

This handbook is designed to help you gain the most from your experience in our department at Cabrini College. It will acquaint you with requirements, procedures, opportunities, and services that exist within the department and will supplement the College Catalog and Student Handbook. Much of this information will be used throughout your four-year program, so please save this handbook until you graduate.

We look forward to you becoming an integral part of our department. All of the faculty are dedicated to helping you acquire the skills and knowledge for success in the workplace, postgraduate education and life. If we can be of any assistance throughout your career here, please don't hesitate to contact us.

Sincerely,

Anne Coleman, Ph.D.
Associate Professor of Life and Physical Sciences
Chair, Science Department

****It is the responsibility of the student to be aware of and meet the requirements for graduation and to make suitable academic progress. Students taking classes out of sequence, declaring their major after their freshman year, or having to repeat classes may not be able to finish their degree within a four year period.**

****All information in this handbook is subject to change. Please contact the Department Chair with any questions regarding policy/standard updates. Students follow the core general education graduation requirements in place during the academic year in which they were enrolled. Students follow the major degree requirements in place during the academic year in which they officially declared the major. Secondary Education students must meet certification criteria valid at their time of certification.**

****The Science Department no longer supports Pre-Professional programs (Pre-Nursing, Pre-OT or Pre-PT). Students wishing to pursue careers in those fields are encouraged to talk with an advisor about which track would be the best fit to aid in pursuing post-bachelor degrees in those fields.**

Science Department Faculty & Staff Information

Full-time faculty

Dr. Joyce Belcher is an Assistant Professor of Biology. She received her Ph.D. in Anatomy & Cell Biology from Temple University and completed postdoctoral research at the University of Pennsylvania (UPenn), where she conducted research on mechanisms that regulate skeletal homeostasis. For her merit at UPenn, she was recognized with an Research and Academic Career Development Award from the National Institutes of Health. Dr. Belcher is continuing her research by characterizing the effects of organic compounds on bone remodeling and also examining muscle-bone interaction using transgenic mouse models. Dr. Belcher teaches in the Biological Science and, Human Anatomy & Physiology sequence.

Office: IAD 204

Phone:(610)902-8370

email:joyce.belcher@cabrini.edu

Dr. Anne Coleman is an Associate Professor of Life and Physical Sciences and Chair of the Science Department. She received her neuroscience Ph.D. from Allegheny University. She teaches Life and Physical Science for Elementary Education majors, Human Anatomy and Physiology I and II, Health and the Human Body, Physics for Everyone, and Neuroscience. Her research focuses on innovative pedagogical strategies in science education. Dr. Coleman advises biology majors and serves on the Pennsylvania State Science Olympiad Executive Board.

Office: IAD 208

Phone:(610)902-8114

email:anne.m.coleman@cabrini.edu

Dr. Ryan A. Colyer is an Assistant Professor of Physics. He received his Ph.D. in Physics from the University of Illinois at Urbana--Champaign, where he developed methods for monitoring fluorescence lifetime dynamics in single proteins. He also completed postdoctoral research at the University of California, Los Angeles where he worked on super-resolution and high-throughput single molecule detection. His primary research interests involve method development in microscopy, imaging, and spectroscopy. Dr. Colyer teaches courses in the Physical Sciences for science and non-science majors.

Office: IAD 310

Phone:(610)902-8310

email:ryan.colyer@cabrini.edu

Dr. David Dunbar is an Associate Professor of Biology. He received his Ph.D. from Lehigh University in Molecular Biology and completed his postdoctoral studies at Yale University. His research focuses on bacteriophage proteogenomics and structural genomics, as well as course- and community-based research benefits. Dr. Dunbar teaches Cell and Molecular Biology, Developmental Biology, Forensic Science, Bioinformatics, Watershed Ecology, and Genetics and Heredity. Dr. Dunbar advises biology majors and is the Faculty Athletic Representative for the College's NCAA-sanctioned athletic teams.

Office: IAD 220

Phone:(610)902-8770

email:david.dunbar@cabrini.edu

Dr. Sheryl Fuller-Espie holds the rank of Professor of Biology. She received her Ph.D. and DIC from Imperial College (University of London) in Biotechnology and completed postdoctoral research at the Royal Postgraduate Medical School, Hammersmith Hospital in London and the Wistar Institute in Philadelphia. Her current research focuses on the cellular basis of innate immune responses in invertebrates. She teaches Genetics, Theory and Practice in Biotechnology, Immunology, Virology, General Microbiology, Animal Behavior, Biochemistry of Cancer, Senior Seminar, and Nutrition. Dr. Fuller-Espie is a biology major advisor.

Office: IAD 222

Phone:(610)902-8369

email:Sheryl.I.fuller-espie@cabrini.edu

Faculty list continues on the next page.

Dr. Melinda Harrison is an Associate Professor of Chemistry in the Science Department. She earned her Ph.D. at Duquesne University. Her research interests include studying proteins that bind metals; selenium metabolism; phage proteins and also wine chemistry. Dr. Harrison teaches Forensic Science, Science and Society, General Chemistry I and II, Biochemistry I and II, Analytical Chemistry and Instrumental Chemistry. Dr. Harrison advises students in the Chemistry program and is the advisor for the *Gamma Sigma Epsilon* honor society.

Office: IAD 204

Phone:(610)902-8504

email:Melinda.a.harrison@cabrini.edu

Dr. Carrie Nielsen serves as an Associate Professor of Biology and Environmental Science. Dr. Nielsen earned her Ph.D. at Stanford University. She teaches Biological Science I and II, Biological Perspectives of Environmental Science, Terrestrial Ecosystems, Wetlands Ecology, and Ecology. Dr. Nielsen is a terrestrial ecosystem ecologist whose research examines both forests and more human-dominated ecosystems such as cities and college campuses. She focuses particularly on processes involving nitrogen, which is both an important plant nutrient and a harmful water pollutant. Her most recent research interests include bacteriophage ecology. Dr Nielsen is a Biology major advisor, the advisor to the *Beta Beta Beta* honor society, and Coordinator for the Environmental Studies minor.

Office: IAD 206

Phone:(610)902-8570

email:caroline.b.nielsen@cabrini.edu

Dr. Joseph Smith is an Associate Professor of Chemistry. He received his Ph.D. in Organic Chemistry from the University of Washington and completed postdoctoral work at the University of California, Irvine. His interests include synthesis and study of small strained molecules, such as highly pyramidalized olefins. Dr. Smith teaches General Chemistry I and II, Organic Chemistry I and II, Inorganic Chemistry, Forensic Science, and Astronomy. Dr. Smith serves as the Chemistry major advisor.

Office: IAD 204

Phone:(610)902-8585

Email :joseph.smith@cabrini.edu

Staff

Ms. Cindy McGauley is the department's Chemical Safety and Hygiene Officer. She received her Masters from Cabrini College and has worked in the field of Clinical Laboratory Science before coming to Cabrini. She is responsible for purchasing, maintaining all equipment, inventories, safety sheets, waster disposal, supervising student workers, ensuring lab safety protocols are followed and is the emergency safety contact. She is the contact person for questions regarding lab procedures. Ms. Mc Gauley also teaches several science literacy courses including Science and Society and health in the Human body.

Office: IAD 306

Phone: (610) 902-8507

Email: cynthia.l.mcgaleay@cabrini.edu

Part-time Faculty

Part-time faculty maintain office space in IAD 224, though most part-time faculty are on campus only during their class times. They are reached most effectively through the email. Messages may be left the Faculty Support Office at 610-902-8310. If there is an emergency please contact Dr. Coleman and she will see that the part-time faculty member receives the message.

General Curriculum Requirements

All students receiving a four-year degree from Cabrini College complete a minimum of 123 credits and the requirements of the Core Curriculum. The general education core is designed to help students develop the qualities, abilities, and skills of a liberally educated person. While each student develops in-depth knowledge within a major, liberally educated students should also share a common core of knowledge. Detailed information regarding this curriculum is available in the college catalog.

General Education Curriculum: Students intending to graduate from Cabrini College must complete the College's general education program. This curriculum is broken down into the Engagements with the Common Good, The Explorations, the 21st Century Literacies, and the First-Year Experience.

- ◆ Students in the Engagements take thematic and community engagement coursework, culminating in a capstone in their major field. The Engagements consists of ECG 100, 200 and 300, taken in the freshman, sophomore and junior years, respectively. Transfer students who have already completed ENG 101 or its equivalent will be placed into the appropriate level of ECG course during their admission process.
- ◆ Explorations courses extend learning from the Engagements and provide a broad exposure to various disciplinary experiences. Students are required to take courses in the following categories: Heritage (H), Imagination, Creativity and Aesthetic Appreciation (A), Values (V) and Individual and Society (I).
- ◆ The 21st Literacies provide foundational knowledge, skills, and experiences which prepare students for deeper, broader and more integrated explorations of the Common Good. Students are required to take coursework in the Information, Cross Cultural/Global, Scientific, Quantitative and Religious literacies.
- ◆ All first-year students at the College complete COL 101 – College Success Seminar. Other courses, such as developmental writing or mathematics courses may be required of some students based on their high school experiences, their SAT scores, and their results on first-year student academic placement exams.

Placement Results

Certain courses required for graduation are dictated by your academic ability and background, as determined by evaluation of your high school records, SAT/ACT scores, and placement exam results. You will be informed of your placements by your academic advisor, but please record that information for your future reference. Students may not enroll in courses below their placement level for academic credit.

Incoming freshman should receive placement results during COL 101 – College Success Seminar and transfer students will have their placements noted on their TCE.

Circle your placement results below so you have a record of courses you need to complete to meet graduation requirements. If you have questions regarding the placements, please contact Dr. Boyd or your academic advisor.

English	Developmental level: ENG 100 Mid- to Honors level: Exempt
Quantitative Literacy	Developmental level: MAT 098/MAT 110/MAT 111 or MAT 098/MAT 117/MAT 118 MAT 099/MAT 110/MAT 111 or MAT 099/MAT 117/MAT 118 Mid level: MAT 113/114 or MAT 117/118 (Science, Exercise Science, Math, Computer Science, and Psychology majors only) Honors level: MAT 130 or EXEMPT from Math requirement Alternate track: Based on majors, some students may have an alternate course sequence. (Consult your advisor for details.)
Cross Cultural & Foreign Language Literacy	Two years or less of prior foreign language experience: LAN 101/102 3 or more years of prior foreign language experience: LAN 102 LAN 201 EXEMPT from Language
Information Literacy	Placement based on placement test. 3 modules: Power Point, Word, Excel. Students may be Exempt, required to take a 1.5 credit course or required to complete one to two 0.5 credit online modules.

**Please note that students placing in the developmental track of mathematics (quantitative literacy) will not be able to begin their science major curriculum until their developmental math requirements are complete. This may require the students to do coursework in the summer to graduate on time or stay for an additional year.

Admission and Retention Standards

Admission Standards: Departmental

In general, first-time, first-year students will be accepted to Cabrini College with the Biology or Chemistry majors as their “intended” fields of study based on criteria set by the Admissions Office of Cabrini College. Students not meeting those criteria may apply to the College as Undeclared.

Students “intending” to enter a Science program are not guaranteed admission to the Department.

Once enrolled, students applying to the Science Department must meet the following criteria:

- Successful completion of one full-time semester (12 or more credits) of coursework or its equivalent at Cabrini College
- Successful completion of at least one majors-level science course.
- 2.50 GPA overall
- 2.33 GPA in any attempted Science majors-level courses (BIO, CHE, ENS, PHY).
- Placement in MAT 117/118 or higher OR Completion of the Math competency as required by Cabrini College

Undeclared students who are interested in pursuing a science degree, but who have not been formally accepted into the major/program, are eligible to enroll in BIO 101/102, CHE 111/112 or PHY 101/102 on a space available basis, assuming they meet course prerequisites, with approval of the Department Chairperson to help them prepare for entry into the major without jeopardizing a timely graduation.

Students not formally accepted into a major/program may not advance to major-specific 200-level or higher major-specific courses until they are formally accepted into the Department.

Retention Standards: College-wide

Graduation from the College requires the completion of 123 college credits or more, with an overall QPA of 2.0 or higher. Students must complete a minimum of 45 credits at Cabrini and it is expected that students will complete the last 30 credits of their degree at Cabrini College. Students who do not maintain the minimum QPA are subject to academic warning, probation or dismissal based on the following standards:

Credits completed	Grounds for warning, probation, or dismissal
0-29 credits	QPA < 1.75
30-75 credits	QPA < 1.9
76 or more credits	QPA < 2.0

The first time the QPA drops below the minimum QPA standard he/she is generally placed on academic WARNING. Students may be placed on academic warning only once during their academic career at Cabrini College. If the student's QPA is not above the minimum level after a semester on warning, the student is placed on PROBATION. A student on academic probation is not in good academic standing and is not eligible to participate in major extracurricular activities, including intercollegiate athletics or holding leadership positions in campus organizations. Academic probation may not be extended beyond one year unless the student has earned a QPA of 2.0 or higher in the most recent semester. If the student's QPA is still below the minimum level at the end of the probation semester, the student will be DISMISSED. Also, if a student's QPA falls below 1.0, he/she is subject to immediate dismissal. Please see Academic Affairs regarding questions on this policy.

Retention and Degree Completion Standards: Departmental

After attempting 16 credits in Science majors-level courses (BIO, CHE, ENS, PHY courses; MAT 131 for chemistry majors only; Calculations do not include non-majors science courses or remedial science courses), students declared in the Biology or Chemistry major will have their departmental GPA's evaluated each semester. An attempt includes courses successfully completed, failed, or courses from which a student has withdrawn. Students must maintain a GPA of 2.00 or higher in all Science majors-level courses taken at Cabrini College to continue in the major or minor and ultimately to graduate with a degree from the Science Department.

The GPA requirement will be enforced after attempting 8 credits for transfer students. Transfer students will be assessed based only on the grades received in Science courses completed at Cabrini College.

Students with a Science course GPA below 2.00 will be considered “on probation” within the Department. Students on probation will receive a formal letter from the Department Chairperson noting the conditions of the probation and will be required to schedule a meeting with the Chairperson and their departmental Advisor to discuss ways to improve their academic standing within the Department. The Chairperson, in consultation with the Advisor and student, will determine a list of courses that must be repeated to improve the GPA. All repeated courses must be taken at Cabrini College unless an exemption is granted by the Chairperson.

During the probationary period, to maximize student success, students may enroll in a maximum of three Science courses during the Fall or Spring semester.

Students on probation within the Department have one full semester (Fall or Spring) to bring their GPA to 2.00 or above or they will be formally dismissed from the Department.

Students may only be on probation in the Department once. Students who have a GPA that drops below 2.00 a second time will be dismissed immediately. Students dismissed from the Department will receive a formal letter from the Department Chairperson. Students that are formally dismissed from the Department may not take any major-specific coursework in the Department, except to repeat courses already attempted in order to improve their College GPA or to take courses offered as part of the General Education core curriculum. Once dismissed, students are not eligible to reapply for admission to or graduate with a major in the Department. Students with extenuating circumstances may submit a formal written appeal to the Department Chairperson and be considered for an extension of the probationary period. All appeals must be received within two weeks of the dismissal letter date. Appeals will be reviewed and a final written decision will be sent to the student within one week of the appeal receipt date.

Students must have a 2.33 (C+) or higher GPA in all required Science courses and have permission of the Department Chairperson to enroll in BIO/CHE 488 – Internship or RBIO/RCHE 166 or 466 – Research. Also, students who have any academic honesty violations on record with the College will not be permitted to register for RBIO/RCHE 166 or 466. Those students not eligible to complete one of these courses will be required to complete one additional 3-4 credit elective in their major field at the 200-level or higher.

Students must successfully complete a minimum of 15 credits, including BIO/CHE 444 – Senior Seminar, at Cabrini College to graduate with a major from the Science Department. Students must successfully complete a minimum of 9 credits at Cabrini College to graduate with a minor in Biology, Chemistry or Environmental Science.

Any student may be subject to immediate dismissal, without a probationary period, from the Department for egregious or repetitive violations of the lab safety policy, theft or destruction of lab equipment/materials, or providing lab access to non-authorized personnel.

Departmental Learning Outcomes

The specific goal of the Science Department is to prepare students for successful careers in science and science-related fields, as well as prepare liberally educated individuals. The Department has identified disciplinary-specific learning outcomes for students completing the biology or chemistry majors.

Biology Major Learning Outcomes

Learning Outcome #1: Graduates of Cabrini College with a major in Biology will have an understanding of foundational biological, chemical, and physical science concepts, as emphasized in the core science course requirements.

- | | |
|--------------------------------------|-----------------------------------|
| 1. Animal Structure and Physiology | 5. Evolution |
| 2. Biochemistry | 6. Genetics |
| 3. Cell Biology | 7. Molecular Biology |
| 4. Ecology and Environmental Science | 8. Taxonomy and Diversity of Life |

Learning Outcome #2: Graduates of Cabrini College with a major in Biology will demonstrate the ability to apply the scientific method and will possess problem solving skills necessary to design, conduct, and troubleshoot experiments and to test a hypothesis.

Learning Outcome #3: Graduates of Cabrini College with a major in Biology will acquire the critical thinking, analytical, and quantitative skills necessary to read, understand, and critically review scientific papers and to interpret and analyze data presented in various forms (i.e. graphs, tables, narrative).

Learning Outcome #4: Graduates of Cabrini College with a major in Biology will develop written and oral communication skills necessary to present scientific ideas to multiple audiences using the accepted format of the discipline.

Learning Outcome #5: Graduates of Cabrini College with a major in Biology will acquire basic proficiency in computational skills, lab techniques, and use of technology (i.e. lab equipment, specialized computer hardware and software) necessary for entry into the science workplace or graduate/professional schools.

Chemistry Major Learning Outcomes

Learning Outcome #1: Graduates of Cabrini College with a major in Chemistry will have an understanding of foundational chemical and physical science concepts, as emphasized in the core science course requirements.

- | | |
|--|-----------------------|
| 1. Analytical and Instrumental chemistry | 4. Organic chemistry |
| 2. Biochemistry | 5. Physical chemistry |
| 3. Inorganic chemistry | |

Learning Outcome #2: Graduates of Cabrini College with a major in Chemistry will demonstrate the ability to apply the scientific method and will possess problem solving skills necessary to design, conduct, and troubleshoot experiments and to test a hypothesis.

Learning Outcome #3: Graduates of Cabrini College with a major in Chemistry will acquire the critical thinking, analytical, and quantitative skills necessary to read, understand, and critically review scientific papers and to interpret and analyze data presented in various forms (i.e. graphs, tables, narrative).

Learning Outcome #4: Graduates of Cabrini College with a major in Chemistry will develop written and oral communication skills necessary to present scientific ideas to multiple audiences using the accepted format of the discipline.

Learning Outcome #5: Graduates of Cabrini College with a major in Chemistry will acquire basic proficiency in computational skills, lab techniques, and use of technology (i.e. lab equipment, specialized computer hard- and software) necessary for entry into the science workplace or graduate/professional schools.

Biology Major

Track in Biological Sciences

Students intending to earn a Bachelor of Science in Biology / Biological Sciences complete the following courses to meet the scientific literacy and major requirements of the College:

◆ BIO 101/102 – Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 231 - Human Anatomy + Physiology II or BIO 301 – General Physiology	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 315 – Introduction to Scientific Presentations	1 credit
◆ BIO 348 - Ecology	4 credits
◆ BIO 444 – Senior Seminar	3 credits
◆ BIO 488 – Internship or RBIO 466– Research Biology (Students double majoring in Secondary Education may use SEC 490 to fulfill this requirement.)	3 credits
◆ *3 BIO electives (One elective must include a lab, two must be at the 300+ level or higher)	10 credits
◆ CHE 111/112 – General Chemistry I and II	8 credits
◆ CHE 211 – Organic Chemistry I	4 credits
◆ PHY 101/102 – General Physics I and II	8 credits
Total:	61 credits

*Acceptable BIO electives include:

BIO 205 - Animal Behavior, BIO 225 - Parasitology, BIO 230 - Human Anatomy and Physiology I, BIO 250 - Nutrition, BIO 308 - General Microbiology, BIO 312 – Theory and Practice in Biotechnology, BIO 314 - Endocrinology, BIO 318 - Basic Virology, BIO 331 - Neuroscience, BIO 350 – Topics in Biology, BIO 412 - Topics in Drug Design and Manufacturing, BIO 420 - Immunology, BIO 430 - Developmental Biology, BIO 440 – Biochemistry I, BIO 441 - Biochemistry II, BIO 499 - Independent Study, ENS 204 - Wetlands Ecology, or others with approval of the Department Chair.

Other requirements:

- ◆ Students must meet all course prerequisites to enroll in an upper level course. Students must take MAT 117, MAT 130 or be exempt AND either MAT 118 or MAT 313 to fulfill the Quantitative Literacy requirement or as electives.
- ◆ Students must earn a C- or higher in BIO 101 to enroll in BIO 102.
- ◆ Students must earn a C- or better in both BIO 101 and BIO 102 to take upper level Biology courses.
- ◆ Students must be admitted to the Department formally to take coursework past BIO 102, CHE 112, and PHY 102.
- ◆ Based on SAT scores and high school preparation, some students will be required to complete CHE 100 as part of their major program.
- ◆ Students must achieve and maintain a 2.0 QPA or higher in majors-level BIO, CHE, ENS and PHY courses once they have completed 16 credits or over in science courses to remain in and graduate from the Biology/Biological Sciences major. Transfer students with 8 or more credits in science at the time of enrollment will be assessed after 8 credits have been earned at Cabrini College. Students dropping below a 2.0 may be put on departmental probation or dismissed from the program.
- ◆ Students must have a 2.33 QPA or higher to enroll in BIO 488 or RBIO 166 or 466.
- ◆ No required or related courses in the major may be taken under the pass/fail option.
- ◆ Students must complete a minimum of 15 credits in BIO courses at Cabrini College to earn a degree from the department.

Biology/Biological Sciences Student Progress Record (2015-2016)

Update this progress record each semester, by checking off each course taken, to ensure you have completed the college and departmental requirements.

General Education Requirements

Course	Specific Course	Semester planned/taken	Completed
ECG 100			
ECG 200			
ECG 300			
<i>Explorations:</i>			
History			
Values			
Individual & Society			
Aesthetics			
<i>Literacies:</i>			
Information:	IST125		
Religious			
Scientific	PHY101		
Scientific	PHY102		
Quantitative	Mat 117 or MAT 130 or Exempt		
	MAT 118 or MAT 313		
Cross Cultural	101 AND 102		
	OR 102/201/Exempt		
<i>Other</i>			
COL101			
ENG 100	If required		
MAT098/099	If required		

Major Biology: Biological Science Track

Course	Specific Course	Semester planned/taken	Completed
BIO 101	General Biology I		
BIO 102	General Biology II		
BIO 206	Cell & Molecular Biology		
BIO 263	Genetics		
BIO 231 or 301	Anatomy & Physiology II or General Physiology		
BIO 348	Ecology		
BIO315	Introduction to Sci. Presen.		
BIO 444	Senior Seminar		
BIO 488 or RBIO 466	Internship/ Research		
CHE 111	General Chemistry I		
CHE 112	General Chemistry II		
CHE 211	Organic I		
Elective 1	300+ level		
Elective 2	300+level		
Elective 3	Lab Based		

Electives: (Complete electives to reach 123 credits.)

Biology Major

Track in Molecular Biology & Biotechnology

Students intending to earn a Bachelor of Science in Biology / Molecular Biology & Biotechnology complete the following courses to meet the scientific literacy and major requirements of the College:

◆ BIO 101/102 – Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 308 – General Microbiology	4 credits
◆ BIO 312 – Theory and Practice in Biotechnology	4 credits
◆ BIO 315 – Introduction to Scientific Presentations	1 credit
◆ BIO 318 – Virology	3 credits
◆ BIO 420 – Immunology	3 credits
◆ BIO 440 – Biochemistry I	4 credits
◆ BIO 444 – Senior Seminar	3 credits
◆ BIO 488 – Internship or RBIO 466 – Research Biology	3 credits
◆ CHE 111/112 – General Chemistry I and II	8 credits
◆ CHE 211/212 – Organic Chemistry I and II	8 credits
◆ PHY 101/102 – General Physics I and II	8 credits
◆ Elective – Select one from BIO 351, BIO/CHE 441, CHE 201, CHE 316, CHE 407	<u>3-4</u> credits
Total:	64-65 credits

Other requirements:

- ◆ Students must meet all course prerequisites to enroll in an upper level course. Students must take MAT 117, MAT 130 or be exempt AND either MAT 118 or MAT 313 to fulfill the Quantitative Literacy requirement or as electives.
- ◆ Students must earn a C- or higher in BIO 101 to enroll in BIO 102.
- ◆ Students must earn a C- or both in either BIO 101 or BIO 102 to take upper level Biology courses.
- ◆ Students must be admitted to the Department formally to take coursework past BIO 102, CHE 112, and PHY 102.
- ◆ Based on SAT scores and high school preparation, some students will be required to complete CHE 100 as part of their major program.
- ◆ Students must achieve and maintain a 2.0 QPA or higher in majors-level BIO, CHE, ENS and PHY courses once they have completed 16 credits or over in science courses to remain in and graduate from the Biology/Molecular Biology & Biotechnology major. Transfer students with 8 or more credits in science at the time of enrollment will be assessed after 8 credits have been earned at Cabrini College. Students dropping below a 2.0 may be put on departmental probation or dismissed from the program.
- ◆ Students must have a 2.33 QPA or higher to enroll in BIO 488 or RBIO 466.
- ◆ No required or related courses in the major may be taken under the pass/fail option.
- ◆ Students must complete a minimum of 15 credits in BIO courses at Cabrini College to earn a degree from the department.

Biology/Molecular Biology & Biotechnology Student Progress Record (2015-2016)

Update this progress record each semester, by checking off each course taken, to ensure you have completed the college and departmental requirements.

General Education Requirements

Course	Specific Course	Semester planned/taken	Completed
ECG 100			
ECG 200			
ECG 300			
<i>Explorations:</i>			
History			
Values			
Individual & Society			
Aesthetics			
<i>Literacies:</i>			
Information:	IST125		
Religious			
Scientific	PHY101		
Scientific	PHY102		
Quantitative	Mat 117 or MAT 130 or Exempt		
	MAT 118 or MAT 313		
Cross Cultural	101 AND 102		
	OR 102/201/Exempt		
<i>Other</i>			
COL101			
ENG 100	If required		
MAT098/099	If required		

Biology Major: Biology and Biotechnology Track

Course	Specific Course	Semester	Completed
BIO 101	General Biology I		
BIO 102	General Biology II		
BIO 206	Cell & Molecular Biology		
BIO 263	Genetics		
BIO 308	Microbiology		
BIO 312	Theory & Prac. Of Biotech.		
BIO315	Introduction to Sci. Presen.		
BIO 318	Virology		
BIO 420	Immunology		
BIO 440	Biochemistry 1		
BIO 444	Senior Seminar		
BIO 488 or RBIO 466	Internship/ Research		
CHE 111	General Chemistry I		
CHE 112	General Chemistry II		
CHE 211	Organic I		
CHE 212	Organic II		
Elective 1	BIO 351 or BIO/CHE 441 or CHE 201 or CHE316, or CHE 406		

Electives: (Complete electives to reach 123 credits.)

Biology Major

Track in Pre-Medicine

Students intending to earn a Bachelor of Science in Biology / Pre-Medicine complete the following courses to meet the scientific literacy and major requirements of the College:

◆ BIO 101/102 – Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 231 – Human Anatomy and Physiology II or 301 – General Physiology	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 308 - General Microbiology	4 credits
◆ BIO 315 – Introduction to Scientific Presentations	1 credit
◆ BIO 440 - Biochemistry I	4 credits
◆ BIO 444 – Senior Seminar	3 credits
◆ BIO 488 – Internship or RBIO 466 – Research Biology	3 credits
◆ *3 BIO electives (Two must be at the 300-level or higher.)	9 credits
◆ CHE 111/112 – General Chemistry I and II	8 credits
◆ CHE 211/212 – Organic Chemistry I and II	8 credits
◆ PHY 101/102 – General Physics I and II	<u>8 credits</u>
Total:	68 credits

*Acceptable BIO electives for the Pre-Medicine track include:

BIO 225 - Parasitology, BIO 230 – Human Anatomy and Physiology I, BIO 250 - Nutrition, BIO 312 – Theory and Practice in Biotechnology, BIO 314 - Endocrinology, BIO 318 - Basic Virology, BIO 331 – Neuroscience, BIO 350 – Topics in Biology (select topics only), BIO 412 - Topics in Drug Design and Manufacturing, BIO 420 - Immunology, BIO 430 – Developmental Biology, BIO 441 - Biochemistry II, BIO 499 - Independent Study, or others with approval of the Department Chairperson.

Other requirements:

- ◆ Students must meet all course prerequisites to enroll in an upper level course. Students must take MAT 117, MAT 130 or be exempt AND either MAT 118 or MAT 313 to fulfill the Quantitative Literacy requirement or as electives.
- ◆ Students must earn a C- or higher in BIO 101 to enroll in BIO 102.
- ◆ Students must earn a C- or better in both BIO 101 or BIO 102 to take upper level Biology courses.
- ◆ Students must be admitted to the Department formally to take coursework past BIO 102, CHE 112, and PHY 102.
- ◆ Based on SAT scores and high school preparation, some students will be required to complete CHE 100 as part of their major program.
- ◆ Students must achieve and maintain a 2.0 QPA or higher in majors-level BIO, CHE and PHY courses once they have completed 16 credits or over in science courses to remain in and graduate from the Biology/Pre-Medicine major. Transfer students with 8 or more credits in science at the time of enrollment will be assessed after 8 credits have been earned at Cabrini College. Students dropping below a 2.0 may be put on departmental probation or dismissed from the program.
- ◆ Students must have a 2.33 QPA or higher to enroll in BIO 488 or RBIO 466.
- ◆ No required or related courses in the major may be taken under the pass/fail option.
- ◆ Students must complete a minimum of 15 credits in BIO courses at Cabrini College to earn a degree from the department.

Biology/Pre-Medicine Student Progress Record (2015-2016)

Update this progress record each semester, by checking off each course taken, to ensure you have completed the college and departmental requirements.

General Education Requirements

Course	Specific Course	Semester planned/taken	Completed
ECG 100			
ECG 200			
ECG 300			
<i>Explorations:</i>			
History			
Values			
Individual & Society			
Aesthetics			
<i>Literacies:</i>			
Information:	IST125		
Religious			
Scientific	PHY101		
Scientific	PHY102		
Quantitative	Mat 117 or MAT 130 or Exempt		
	MAT 118 or MAT 313		
Cross Cultural	101 AND 102		
	OR 102/201/Exempt		
<i>Other</i>			
COL101			
ENG 100	If required		
MAT098/099	If required		

Biology Major: Pre-medicine Track

Course	Specific Course	Semester	Completed
BIO 101	General Biology I		
BIO 102	General Biology II		
BIO 206	Cell & Molecular Biology		
BIO 263	Genetics		
BIO 231/301	A & P II or Gen. Phys.		
BIO 308	Microbiology		
BIO315	Introduction to Sci. Presen.		
BIO 440	Biochemistry 1		
BIO 444	Senior Seminar		
BIO 488 or RBIO 466	Internship/ Research		
CHE 111	Gen. Chemistry I		
CHE 112	Gen. Chemistry II		
CHE 211	Organic I		
CHE 212	Organic II		
Elective 1	300+ level		
Elective 2	300+ level		
Elective 3			

Electives: (Complete electives to reach 123 credits.)

Biology/Pre-Medicine

Accelerated Podiatric Medicine Curriculum

Students intending to earn a Bachelor of Science in Biology/Pre-Medicine at Cabrini College and a Doctor of Podiatric Medicine at Temple University School of Podiatric Medicine (TUSPM) must complete all the Core and General Education courses required by Cabrini College. Students must complete additional credits in Biology and related fields at Cabrini College and the first year podiatric medicine curriculum at Temple University prior to awarding of the B.S. degree. Please contact Dr. Anne Coleman to discuss this option in detail.

The requirements of the B.S. in Biology/Pre-Medicine at Cabrini include:

Cabrini College General Education/Major Requirements:

BIO 101/102 – Biological Science I and II	8 credits
BIO 206 – Cell and Molecular Biology	4 credits
BIO 263 – Genetics	4 credits
BIO 308 – General Microbiology	4 credits
BIO 315 – Introduction to Scientific Presentations	1 credit
CHE 111/112 – General Chemistry I and II	8 credits
CHE 211/212 – Organic Chemistry I and II	8 credits
MAT 130 or higher – Calculus I (As Quantitative Literacy or Elective)	4 credits
PHY 101/102 – General Physics I and II	8 credits

Courses taken at Temple University:

BIO 301 – General Physiology	credit for course #111 - Physiology
BIO 440 – Biochemistry I	credit for course #110 - Biochemistry
BIO 444 – Senior Seminar	credit for course #161 - Research Design
BIO 488 – Internship	credit for course #130 - Podiatric Medicine
BIO 331 – Neuroscience	credit for course #104 - Neuroscience
BIO Elective	credit for course #100 - Histology
BIO Elective	credit for course #102 - General Anatomy

Other Cabrini College requirements:

The Cabrini College Pre-Medical advisor reserves the right to only support applications for students who have:

- ◆ taken all science classes at Cabrini College OR who have received prior approval to take classes off campus from the Pre-Medical advisor;
- ◆ earned a B- or higher in all required courses plus a 3.5 basic science QPA OR earned no less than a C in all required courses plus a 3.5 basic science QPA;
- ◆ and have no record of academic dishonesty at the College.

Articulation Requirements:

- ◆ Students must complete 90 or more credits at Cabrini College.
- ◆ Students must achieve a score of 20 or higher on the Medical College Admissions Test (MCAT) or score above the 45th percentile in all sections of the Graduate Record Exam (GRE).
- ◆ Complete a successful interview and evaluation by the admissions committee of TUSPM during the fall of their junior year.
- ◆ Obtain a composite letter of recommendation from the Cabrini College pre-medical advisor and two additional letters of recommendation from health professionals, including one from a podiatric physician.

Biology/Pre-Medicine Physician Assistant Curriculum

Students intending to earn a Bachelor of Science in Biology/Pre-Medicine at Cabrini College and a Master of Medical Science in Physician Assistant Studies at Arcadia University through the articulation program must complete all the core, distribution, and major courses required by Cabrini College as well as meet the articulation requirements, some of which are described below. Admission to the articulation program is competitive and admission is not guaranteed by Cabrini College or Arcadia University. Please contact Dr. Anne Coleman to discuss this option in detail.

1. Students must be matriculated full-time at Cabrini College for their final four semesters in Biology/Pre-Medicine.
2. Arcadia grants assured admission each year to the four most qualified Cabrini College students who complete the following requirements:
 - Completion of degree requirements in Biology/Pre-Medicine or other acceptable major.
 - Successful completion of M.M.S. prerequisite courses which include:
 - Six lecture/lab courses in Biology, including anatomy, physiology, and microbiology
 - Four lecture/lab courses in Chemistry, including organic chemistry
 - One course in Psychology, developmental or abnormal are highly recommended
 - One course in Statistics
 - Five courses in Humanities, ethics is highly recommended
 - Achieve a 3.5 QPA overall
 - Achieve a 3.5 QPA in prerequisite courses, excluding humanities
 - Earn a C or better in all prerequisite courses
 - Achieve a minimum of 1,700 on the verbal, quantitative, and analytical portions of the GRE, with no single score below 450
 - Develop knowledge of the profession through a minimum of 500 hours of relevant paid or volunteer work
 - Obtain a recommendation from a practicing, licensed physician or PA
 - Obtain a recommendation from the Pre-Medical Advisor at Cabrini College
 - Completion of a successful interview with the M.M.S. program director at Arcadia University

Biology Major

Track in Health Science

Students intending to earn a Bachelor of Science in Biology / Health Science complete the following courses to meet the scientific literacy and major requirements of the College:

◆ BIO 101/102 – Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 230 – Human Anatomy and Physiology I	4 credits
◆ BIO 231 - Human Anatomy + Physiology II	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 315 – Introduction to Scientific Presentations	1 credit
◆ BIO 444 – Senior Seminar	3 credits
◆ **BIO 488 – Internship or RBIO 466– Research Biology	3 credits
◆ *4 electives (At least one BIO/Chem course must be at the 300+ level)	12-15 credits
◆ CHE 111/112 – General Chemistry I and II	8 credits
◆ CHE 211 – Organic Chemistry I	4 credits
◆ PHY 101/102 – General Physics I and II	<u>8 credits</u>
Total:	63- 66credits

*Acceptable Electives include:

BIO 250 – Nutrition; BIO 308 – Microbiology; BIO 318 – Virology; BIO 331 – Neuroscience; BIO 350 – Topics in Biology (Approved by Chair); BIO 420 – Immunology; BIO 430 – Developmental Biology; BIO 440 – Biochemistry I; BIO 441 – Biochemistry II; CHE 212 – Organic Chemistry II; CHE 350 – Topics in Chemistry (Approved by Chair); PSY 309 – Developmental Psychology; PSY 320 – Abnormal Psychology; SOC 215 – Introduction to Sociology: Race, Class and Gender; Other courses approved by Chair

**BIO 444 must be completed on a health-care related topic, including reviews of clinical/medical research. BIO 488/RBIO 466 must be a clinically-based experience, with a focus on a health/medicine topic approved by the Department Chair. Students may enroll in a non-clinical RBIO 466 for elective credit only.

{Students can tailor the major electives to suit their particular graduate program requirements. For example, sample major electives for students interested in nursing, a curriculum that requires more social science, might include BIO 308, PHY 309, PSY 320 and SOC 215. Sample major electives for students interested in physician assistant studies might include BIO 308, BIO 440, CHE 212 and SOC 215.}

Other requirements:

- ◆ Students must meet all course prerequisites to enroll in an upper level course. Students must take MAT 117, MAT 130 or be exempt AND either MAT 118 to fulfill the Quantitative Literacy requirement or as electives.
- ◆ Students must take PSY 101 Introduction to Psychology to fulfill Individual & Society Exploration
- ◆ Students must earn a C- or higher in BIO 101 to enroll in BIO 102.
- ◆ Students must earn a C- or better in both BIO 101 or BIO 102 to take upper level Biology courses.
- ◆ Students must be admitted to the Department formally to take coursework past BIO 102, CHE 112, and PHY 102.
- ◆ Based on SAT scores and high school preparation, some students will be required to complete CHE 100 as part of their major program.
- ◆ Students must achieve and maintain a 2.0 QPA or higher in majors-level BIO, CHE, ENS and PHY courses once they have completed 16 credits or over in science courses to remain in and graduate from the Biology/Biological Sciences major. Transfer students with 8 or more credits in science at the time of enrollment will be assessed after 8 credits have been earned at Cabrini College. Students dropping below a 2.0 may be put on departmental probation or dismissed from the program.
- ◆ Students must have a 2.33 QPA or higher to enroll in BIO 488 or RBIO 466.
- ◆ No required or related courses in the major may be taken under the pass/fail option.
- ◆ Students must complete a minimum of 15 credits in BIO courses at Cabrini College to earn a degree from the department.

Biology/ Health Science Student Progress Record (2015-2016)

Update this progress record each semester, by checking off each course taken, to ensure you have completed the college and departmental requirements.

General Education Requirements

Course	Specific Course	Semester planned/taken	Completed
ECG 100			
ECG 200			
ECG 300			
<i>Explorations:</i>			
History			
Values			
Individual & Society			
Aesthetics			
<i>Literacies:</i>			
Information:	IST125		
Religious			
Scientific	PHY101		
Scientific	PHY102		
Quantitative	Mat 117 or MAT 130 or Exempt		
	MAT 118 or MAT 313		
Cross Cultural	101 AND 102		
	OR 102/201/Exempt		
<i>Other</i>			
COL101			
ENG 100	If required		
MAT098/099	If required		

Major: Biology Health ScienceTrack

Course		Semester	Completed
BIO 101	Gen. Bio I		
BIO 102	Gen. Bio II		
BIO 206	Cell & Molec.		
BIO 263	Genetics		
BIO 230	A&P I		
BIO 231	A&P II		
BIO315	Intro. Presentations		
BIO 444	Senior Seminar		
BIO 488 or RBIO 466	Internship/ Research		
CHE 111	General Chemistry I		
CHE 112	General Chemistry II		
CHE 211	Organic I		
Elective 1 (Bio/Che 300+)			
Elective 2			
Elective 3			
Elective 4			

Electives: (Complete electives to reach 123 credits.)

Biology Major Health Science Track Accelerated Pharmacy Curriculum

Students intending to earn a Bachelor of Science in Biology Health Science Track at Cabrini College and a Pharm- D in Pharmacy Thomas Jefferson University must complete all the Core and General Education courses required by Cabrini College. Students must complete additional credits in Biology/ Health Science Track and related fields at Cabrini College and the first year pharmacy curriculum at Thomas Jefferson University prior to awarding of the B.S. degree. Please contact Dr. Anne Coleman to discuss this option in detail.

The requirements of the B.S. in Biology Health Science Track at Cabrini include:

Cabrini College General Education/Major Requirements:

BIO 101/102 – Biological Science I and II	8 credits
BIO 230/231 – Anatomy & Physiology I & II	8 credits
BIO 263 – Genetics	4 credits
BIO 308 – General Microbiology	4 credits
CHE 315 – Introduction to Scientific Presentations	1 credit
CHE 111/112 – General Chemistry I and II	8 credits
CHE 211/212 – Organic Chemistry I and II	8 credits
MAT 130 - Calculus I	4 credits
PHY 101/102 – General Physics I and II	8 credits
PSY 101 – Introduction to Psychology	3 credits
PSY 320 – Developmental Psychology	3 credits
SOC 215 – Introduction to Sociology	3 credits

Courses taken at Thomas Jefferson University:

MAT 118 – Statistics	credit for course - Biostatistics
BIO 206 – Cell & Molecular Biology	credit for Molecular and Cell Biology
BIO 444 – Senior Seminar	credit for courses - Health Care Communications & Patient Counseling; Healthcare Service Learning; Healthcare Delivery Systems
BIO 488 – Internship	credit for course - Pharmacy Practice 1 & II
BIO Elective	credit for course - Biochemistry
BIO Elective	credit for Pathophysiology I & II

Other Cabrini College requirements:

The Cabrini College Biology Health Science Track advisor reserves the right to only support applications for students who have:

- ◆ taken all science classes at Cabrini College OR who have received prior approval to take classes off campus from the Biology Health Science Track advisor;
- ◆ earned a B- or higher in all required courses plus a 3.5 basic science QPA OR earned no less than a C in all required courses plus a 3.5 basic science QPA;
- ◆ and have no record of academic dishonesty at the College.

Articulation Requirements:

- ◆ Students must complete 90 or more credits at Cabrini College.
- ◆ Students must achieve a score in the top 70th percentile or higher on the Pharmacy College Admissions Test (PCAT).
- ◆ Complete a successful interview and evaluation by the admissions committee of Thomas Jefferson during the fall of their junior year.
- ◆ Obtain a composite letter of recommendation from the Cabrini College chemistry advisor and two additional letters of recommendation from health professionals, including one from a pharmacist.

Biology Major Health Science Track Accelerated Physical Therapy Curriculum

Students intending to earn a Bachelor of Science in Biology Health Science Track at Cabrini College and a Doctorate of Physical Therapy at Widener University must complete all the Core and General Education courses required by Cabrini College. Students must complete additional credits in Biology/ Health Science Track and related fields at Cabrini College and the first year physical therapy curriculum at Widener University prior to awarding of the B.S. degree. Please contact Dr. Anne Coleman to discuss this option in detail.

The requirements of the B.S. in Biology/ Health Science Track at Cabrini include:

Cabrini College General Education/Major Requirements:

BIO 101/102 – Biological Science I and II	8 credits
BIO 230/231 – Anatomy & Physiology I & II	8 credits
BIO 206 – Cell and Molecular Biology	4 credits
BIO 263 – Genetics	4 credits
CHE 315 – Introduction to Scientific Presentations	1 credit
CHE 111/112 – General Chemistry I and II	8 credits
CHE 211/ – Organic Chemistry I	4 credits
MAT 117/130 or exempt - Alg/Trig or Calculus	3 credits
MAT 118 – Statistics	3 credits
PHY 101/102 – General Physics I and II	8 credits
PSY 101 – Introduction to Psychology	3 credits
PSY 320 – Developmental Psychology	3 credits
SOC 215 – Introduction to Sociology	3 credits

Courses taken at Widener University:

BIO 444 – Senior Seminar	credit for courses - Evidence Based Inquiry I
BIO 488 – Internship	credit for course - Clinical Practice 1
BIO Elective	credit for course - Histology
BIO Elective	credit for course - Kinesiology

Other Cabrini College requirements:

The Cabrini College Biology Health Science Track advisor reserves the right to only support applications for students who have:

- ◆ taken all science classes at Cabrini College OR who have received prior approval to take classes off campus from the Biology Health Science Track advisor;
- ◆ earned a B- or higher in all required courses plus a 3.5 basic science QPA OR earned no less than a C in all required courses plus a 3.5 basic science QPA;
- ◆ and have no record of academic dishonesty at the College.

Articulation Requirements:

- ◆ Students must complete 90 or more credits at Cabrini College.
- ◆ Students must achieve a or score above the 45th percentile in all sections of the Graduate Record Exam (GRE).
- ◆ Complete a successful interview and evaluation by the admissions committee of Thomas Jefferson during the fall of their junior year.
- ◆ Obtain a composite letter of recommendation from the Cabrini College chemistry advisor and two additional letters of recommendation from health professionals, including one from a pharmacist.

Biology Major

Track in Pre-Dental

Students intending to earn a Bachelor of Science in Biology / Pre-Dental complete the following courses to meet the scientific literacy and major requirements of the College:

◆ BIO 101/102 – Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 301 – General Physiology	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 290 – Clinical Experience in Dental Medicine	1 credit
◆ BIO 291 – Intro to Clinical Research	1 credit
◆ BIO 308 - General Microbiology	4 credits
◆ BIO 315 – Introduction to Scientific Presentations	1 credit
◆ BIO 360 – Dental Anatomy & Physiology	1 credit
◆ BIO 440 - Biochemistry I	4 credits
◆ BIO 444 – Senior Seminar	3 credits
◆ BIO 488 – Internship or RBIO 466 – Research Biology	3 credits
◆ *2 BIO electives (Must be at the 300-level or higher.)	6 credits
◆ CHE 111/112 – General Chemistry I and II	8 credits
◆ CHE 211/212 – Organic Chemistry I and II	8 credits
◆ PHY 101/102 – General Physics I and II	<u>8 credits</u>
Total:	68 credits

*Acceptable BIO electives for the Pre-Medicine track include:

BIO 312 – Theory and Practice in Biotechnology, BIO 314 - Endocrinology, BIO 318 - Basic Virology, BIO 331 – Neuroscience, BIO 350 – Topics in Biology (select topics only), BIO 412 - Topics in Drug Design and Manufacturing, BIO 420 - Immunology, BIO 430 – Developmental Biology, BIO 441 - Biochemistry II, BIO 499 - Independent Study, or others with approval of the Department Chairperson.

Other requirements:

- ◆ Students must meet all course prerequisites to enroll in an upper level course. Students must take MAT 130 or be exempt AND either MAT 118 or MAT 313 to fulfill the Quantitative Literacy requirement or as electives.
- ◆ Students must earn a C- or higher in BIO 101 to enroll in BIO 102.
- ◆ Students must earn a C- or better in both BIO 101 or BIO 102 to take upper level Biology courses.
- ◆ Students must be admitted to the Department formally to take coursework past BIO 102, CHE 112, and PHY 102.
- ◆ Based on SAT scores and high school preparation, some students will be required to complete CHE 100 as part of their major program.
- ◆ Students must achieve and maintain a 2.0 QPA or higher in majors-level BIO, CHE and PHY courses once they have completed 16 credits or over in science courses to remain in and graduate from the Biology/Pre-Medicine major. Transfer students with 8 or more credits in science at the time of enrollment will be assessed after 8 credits have been earned at Cabrini College. Students dropping below a 2.0 may be put on departmental probation or dismissed from the program.
- ◆ Students must have a 2.33 QPA or higher to enroll in BIO 488 or RBIO 466.
- ◆ No required or related courses in the major may be taken under the pass/fail option.
- ◆ Students must complete a minimum of 15 credits in BIO courses at Cabrini College to earn a degree from the department.

***** Pre-Dental tracks start in 2014, only students starting at Cabrini in 2014 or after are eligible to select this track.

Biology/ Pre-Dental Student Progress Record (2015-2015)

Update this progress record each semester, by checking off each course taken, to ensure you have completed the college and departmental requirements.

General Education Requirements

Course	Specific Course	Semester planned/taken	Completed
ECG 100			
ECG 200			
ECG 300			
<i>Explorations:</i>			
History			
Values			
Individual & Society			
Aesthetics			
<i>Literacies:</i>			
Information:	IST125		
Religious			
Scientific	PHY101		
Scientific	PHY102		
Quantitative	Mat 117 or MAT 130 or Exempt		
	MAT 118 or MAT 313		
Cross Cultural	101 AND 102		
	OR 102/201/Exempt		
<i>Other</i>			
COL101			
ENG 100	If required		
MAT098/099	If required		

Major: Biology Pre-Dental Track

Course		Semester	Completed
BIO 101	Gen. Bio I		
BIO 102	Gen. Bio II		
BIO 206	Cell & Molecular Biology		
BIO 263	Genetics		
BIO 301	Gen. Phys.		
BIO 308	Microbiology		
BIO 440	Biochemistry. I		
BIO315	Intro. Presentation.		
BIO 444	Senior Seminar		
BIO 488 or RBIO 466	Internship/ Research		
CHE 111	General Chemistry I		
CHE 112	General Chemistry II		
CHE 211	Organic I		
CHE 212	Organic II		
BIO290	Clinical Exp. Dent		
BIO 291	Intro. Clin. Reserc.		
BIO 360	Dent. A &P		
Elective 1 300+			
Elective 2 300+			

Electives: (Complete electives to reach 123 credits.)

Biology/Pre-Dental

Cabrini College & Temple University Kornberg School of Dentistry: Accelerated Dental Medicine Curriculum

Students intending to earn a 3+4 Bachelor of Science in Biology/Pre-Dental at Cabrini College and a Doctor of Dental Medicine (D.M.D.) at Temple University School of Dentistry (TUSD) must complete all the core and distribution courses required by Cabrini College. Students must complete all credits in Biology and related fields at Cabrini College and the first year dental medicine curriculum at Temple University prior to awarding of the B.S. degree. This option requires special admission and has additional admission requirements. Please contact Dr. Kimberly Boyd to discuss this option in detail.

The requirements of the B.S. in Biology/Pre-Dental at Cabrini include:

Cabrini College General Education/Major Requirements:

BIO 101/102 – Biological Science I and II	8 credits
BIO 206 – Cell and Molecular Biology	4 credits
BIO 263 – Genetics	4 credits
BIO 290 – Clinical Experience in Dental Medicine	1 credit
BIO 291 – Intro to Clinical Research	1 credit
BIO 301 – General Physiology	4 credits
BIO 308 – General Microbiology	4 credits
BIO 315 – Introduction to Scientific Presentations	1 credit
BIO 360 – Dental Anatomy & Physiology	1 credit
BIO 440 - Biochemistry I	4 credits
CHE 111/112 – General Chemistry I and II	8 credits
CHE 211/212 – Organic Chemistry I and II	8 credits
MAT 130 or higher – Calculus I (As Quantitative Literacy or Elective)	4 credits
PHY 101/102 – General Physics I and II	8 credits

Courses taken at Temple University:

BIO Elective	credit for course D101 - General and Oral Histology (6 credits)
BIO Elective	credit for course D202 - Gross Anatomy (4 credits)
BIO Elective	credit for course D203 - Neuroanatomy (2 credits)
BIO 444 – Senior Seminar and	credit for courses in Preventive Dentistry, Restorative Dentistry, Dental Materials, Introduction to Periodontology (16 credits)
BIO 488 – Internship	

Other Cabrini College requirements:

The Cabrini College Pre-Dental advisor reserves the right to only support applications for students who have:

- ◆ taken all science classes at Cabrini College OR
- ◆ received prior approval to take classes off campus from the Pre-Dental advisor;
- ◆ earned a C or higher in all required courses plus a 3.5 basic science QPA;
- ◆ and have no record of academic dishonesty at the College.

Articulation Requirements:

- ◆ Students must complete 90 or more credits at Cabrini prior to June 30 of the admission year to TUSD.
- ◆ To meet Temple University's requirements, students must earn a 3.5 QPA or higher overall and in science at the time of application and admission to Temple University.
- ◆ Formally declare your intention to participate in the TUSD articulation program to the Cabrini College Pre-Dental advisor prior to May 1 of your sophomore year.
- ◆ Students must complete the Dental Admission Test (DAT) no later than October of their junior year and earn minimum scores as determined by the TUSD. English proficiency is also required as determined by TUSD.
- ◆ Students must complete an application and have a successful interview by the admissions committee of TUSD during the fall of their junior year. TUSD reserves the right to refuse admission to any candidate it feels does not meet the minimum admission standards set forth by the TUSD admissions committee.
- ◆ Obtain a composite letter of recommendation from the Cabrini College Pre-Dental advisor with support of two additional Cabrini College Science Department professors.
- ◆ Students who can not complete the Cabrini College requirements in 3 years may be eligible to participate in the articulation program after completion of their 4th year at Cabrini (4+4 option).

BIOLOGY MAJOR TRACK COMPARISONS

2014-2015 CURRICULUM - GENERAL EDUCATION REQUIREMENTS

College General Education Requirements

<i>Other</i>	Col 101	ENG 100 [^]		
<i>Engagements</i>	ECG 100	ECG 200	ECG 300	
<i>Explorations:</i>	History	Values	Indiv. & Soc.*	Aesthetic Appr.
<i>Quantitative Lit</i>	MAT 098/099	MAT 117 or 130 or Exempt*	MAT 188 or Mat 313*	
<i>Cross Cultural</i>	101 & 102	102 or 201 [^]		
<i>Information Lit</i>	IST 100 or IST 125			
<i>Religious Lit</i>	REL			
<i>Scientific Lit</i>	PHY 101	PHY102		

[^]If required based on freshman placement results.

*SPE 110 is a required core course for the Biology/Secondary Education Certification degrees.

Biology Core & Track Requirements

Course	Biological Sciences	Molecular Biology/ Biotechnology	Pre-Medicine	Pre-Dental	Health Sciences
BIO 101	X	X	X	X	X
BIO 102	X	X	X	X	X
BIO 206	X	X	X	X	X
BIO 230					X
BIO 231/301	X	X	X	X	X
BIO 248	X				
BIO 263	X	X	X	X	X
BIO 290/291				X	
BIO 308		X	X	X	
BIO 312		X			
BIO 315	X	X	X	X	X
BIO 318		X			
BIO 348					
BIO 420		X			
BIO 440		X		X	
BIO 444	X	X	X	X	X
BIO 488/RBIO 466	X	X	X	X	X
Elective*	X	X	X	X	X
Elective*	X		X	X	X
Elective*	X		X		X
Elective *					X
CHE 111	X	X	X	X	X
CHE 112	X	X	X	X	X
CHE 211	X	X	X	X	X
CHE 212		X	X	X	

*Approved electives for each track varies. Please consult the College Catalog or your advisor for a list of acceptable electives.

Chemistry Major

The Chemistry program at Cabrini is designed to prepare chemistry majors for successful careers in a variety of industries and professions including the pharmaceutical industry, biotechnology, medicine, academics, secondary education, government labs, as well as other chemistry related fields.

Students seeking a Bachelor of Science degree in Chemistry are required to take PHY 101/102 as their Scientific literacy requirement and must take MAT 130 for their core requirement in mathematics. Additionally, students must take 49-50 credits in Chemistry and related fields to complete the degree.

◆ CHE 111/112 – General Chemistry I and II	8 credits
◆ CHE 201 – Analytical Chemistry	3 credits
◆ CHE 211/212 – Organic Chemistry I and II	8 credits
◆ CHE 303 – Inorganic Chemistry	3 credits
◆ CHE 315 – Introduction to Scientific Presentations	1 credit
◆ CHE 401 – Physical Chemistry I or CHE 402 – Physical Chemistry II	4 credits
◆ CHE 407 – Instrumental Analysis	4 credits
◆ CHE 440 – Biochemistry I	4 credits
◆ CHE 444 – Senior Seminar	3 credits
◆ CHE 488 – Internship or RCHE 466 – Research Chemistry (Students double majoring in Secondary Education may use SEC 490 in place of internship or research.)	4 credits
◆ *CHE elective	3-4 credits
◆ MAT 131 – Calculus II	4 credits
◆ PHY 101/102 – General Physics I and II	<u>8 credits</u>
Total:	57-58 credits

* Chemistry majors are also required to take one chemistry elective from a selection of courses which includes: BIO 441/CHE 441 – Biochemistry II, CHE 307 – Polymer Chemistry, CHE 316 – Combinatorial and Computational Chemistry, CHE 402 – Physical Chemistry II, CHE 350 – Topics in Chemistry, CHE 416 – Advanced Organic Chemistry I, CHE 417 – Advanced Organic Chemistry II, CHE 418 - Organic Spectroscopy, ENS/CHE 220 – Environmental Chemistry, or others with approval of the Department Chairperson. Through an affiliation with a number of local colleges, students may have to take chemistry courses off-campus that will be included as part of their program of required chemistry courses.

Other requirements:

- ◆ Students must meet all course prerequisites to enroll in an upper level course.
- ◆ Based on SAT scores and high school preparation, some students will be required to complete CHE 100 as part of their major program.
- ◆ Students must earn a C- or higher in CHE 111 to enroll in CHE 112.
- ◆ Students must earn a C- or better in both CHE 111 and CHE 112 to take upper level Chemistry courses.
- ◆ Students must be accepted into the major to take classes past CHE 112 and PHY 102.
- ◆ No required or related courses in the major may be taken under the pass/fail option.
- ◆ Students must achieve and maintain a 2.0 QPA or higher in CHE, PHY, and MAT courses once they have completed 16 credits or over in science courses to remain in and graduate from the Chemistry program. Transfer students with 8 or more credits in science at the time of enrollment will be assessed after 8 credits have been earned at Cabrini College. Students dropping below a 2.0 may be put on departmental probation or dismissed from the program.
- ◆ Students must have a 2.33 QPA or higher to enroll in CHE 488 or RCHE 466.

Chemistry Student Progress Record (2015-2016)

Update this progress record each semester, by checking off each course taken, to ensure you have completed the college and departmental requirements.

General Education Requirements

Course	Specific Course	Semester planned/taken	Completed
ECG 100			
ECG 200			
ECG 300			
<i>Explorations:</i>			
History			
Values			
Individual & Society			
Aesthetics			
<i>Literacies:</i>			
Information:	IST125		
Religious			
Scientific	PHY101		
Scientific	PHY102		
Quantitative	Mat 117 or MAT 130 or Exempt		
	MAT 118 or MAT 313		
Cross Cultural	101 AND 102		
	OR 102/201/Exempt		
<i>Other</i>			
COL101			
ENG 100	If required		
MAT098/099	If required		

Major Chemistry:

Course		Semester	Completed
CHE 100	<i>If required</i>		
CHE 111	General Chemistry I		
CHE 112	General Chemistry II		
CHE 201	Analytical Chemistry		
CHE 211	Organic Chemistry I		
CHE 212	Organic Chemistry II		
CHE 303	Inorganic Chemistry		
CHE 315	Introduction to Science. Presen.		
CHE 401 or 402	Physical Chemistry I or II		
CHE 407	Instrumental Analysis		
CHE 440	Biochemistry I		
CHE 444	Senior Seminar		
CHE 488 or RCHE 466	Internship/ Research		
CHE Elective			
MAT 131	Calculus II		

Electives: (Complete electives to reach 123 credits.)

Chemistry Major

Accelerated Pre-Pharmacy Curriculum

Students intending to earn a Bachelor of Science in Chemistry at Cabrini College and a Doctor of Pharmacy Thomas Jefferson University must complete all the Core and General Education courses required by Cabrini College. Students must complete additional credits in Chemistry and related fields at Cabrini College and the first year pharmacy curriculum at Thomas Jefferson University prior to awarding of the B.S. degree. Please contact Dr. Anne Coleman to discuss this option in detail.

The requirements of the B.S. in Chemistry at Cabrini include:

Cabrini College General Education/Major Requirements:

BIO 101/102 – Biological Science I and II	8 credits
BIO 230/231 – Anatomy & Physiology I & II	8 credits
BIO 308 – General Microbiology	4 credits
CHE 315 – Introduction to Scientific Presentations	1 credit
CHE 111/112 – General Chemistry I and II	8 credits
CHE 211/212 – Organic Chemistry I and II	8 credits
CHE 201 – Analytical Chemistry	
CHE 303 – Inorganic Chemistry	
CHE 401/402 – Physical Chemistry I or II	
CHE 407 – Instrumental Chemistry	
MAT 130 & 131 Calculus I & II	8 credits
PHY 101/102 – General Physics I and II	8 credits
PSY 101 – Introduction to Psychology	3 credits
PSY 320 – Developmental Psychology	3 credits
SOC 215 – Introduction to Sociology	

Courses taken at Thomas Jefferson University:

MAT 118 – Statistics	credit for course - Biostatistics
CHE 440 – Biochemistry I	credit for course - Biochemistry
CHE 444 – Senior Seminar	credit for courses - Health Care Communications & Patient Counseling; Healthcare Service Learning; Healthcare Delivery Systems
CHE 488 – Internship	credit for course - Pharmacy Practice 1 & II
BIO 331 – Neuroscience	credit for course - Neuroscience
CHE Elective	credit for course – Medicinal Chemistry

Other Cabrini College requirements:

The Cabrini College Chemistry advisor reserves the right to only support applications for students who have:

- ◆ taken all science classes at Cabrini College OR who have received prior approval to take classes off campus from the Chemistry advisor;
- ◆ earned a B- or higher in all required courses plus a 3.5 basic science QPA OR earned no less than a C in all required courses plus a 3.5 basic science QPA;
- ◆ and have no record of academic dishonesty at the College.

Articulation Requirements:

- ◆ Students must complete 90 or more credits at Cabrini College.
- ◆ Students must achieve a score in the top 70th percentile or higher on the Pharmacy College Admissions Test (PCAT).
- ◆ Complete a successful interview and evaluation by the admissions committee of Thomas Jefferson during the fall of their junior year.
- ◆ Obtain a composite letter of recommendation from the Cabrini College chemistry advisor and two additional letters of recommendation from health professionals, including one from a pharmacist.

Secondary Education Certification

The College does offer a major in Secondary Education and certification in both Biology and Chemistry. Students should refer to the College Catalog for Secondary Education major requirements.

Capstone Experiences

While your science coursework will provide you with content knowledge, technical skills, application skills, and written and oral communication skills, two capstone experiences are part of the Biology and Chemistry curricula as well. These courses are to help you integrate your knowledge, to explore individual areas of interest through research, and to better understand what it is to be a professional scientist. (Majors seeking Secondary Education Certification are exempt from BIO/CHE 488, but must complete SEC 490 - Student Teaching and Practicum in its place. Grades for SEC 490 are not used in the science major GPA calculation for graduation.)

BIO/CHE 444 – Senior Seminar

During your final year, students complete a senior thesis project and participate in a science research seminar series. In the fall semester, students register for BIO/CHE 444 (1.5 credits). During this semester students will have weekly meetings with the course advisor, select a topic of interest, select a faculty mentor, and begin library research of peer-reviewed scientific journals. During the spring semester, students will again register for BIO/CHE 444 (1.5 credits). In this semester, students will meet weekly with a faculty advisor and discuss issues related to research, written and oral communication skills, careers in the sciences (i.e. resume writing, job interviews) and post-graduate education. Students also continue working on their research thesis. The year culminates with a written thesis on their selected topic, a public poster presentation of the work, and an oral defense.

BIO/CHE 488 – Internship or RBIO/RCHE 466 – Research Biology/Chemistry

The second experiential capstone experience is for students to gain practical experience in the workplace. Students completing BIO/CHE 488 are placed in industry, university research labs, and hospitals, depending on their area of interest and must complete a minimum of 135 hours in the field for the Biology major and 180 hours in the field for the Chemistry major. Students should begin to search/apply for internship positions during their junior year. Positions may be paid or volunteer, but must be approved by the department before credit will be granted. The department will attempt to assist students who are unable to obtain a position themselves. Note that successful internship placement is dependent upon the selection criteria of the company, university, or hospital in conjunction with the student's academic performance. Students will register for BIO/CHE 488 during a semester either after the internship is completed or while the internship is in progress. Students are graded based on a work evaluation from their supervisor, a written summary of their research activities, and an oral presentation of their work. Please see the Departmental Internship Handbook, which is available at www.cabrini.edu/science for details.

Select students complete RBIO/RCHE 466 and have the opportunity to do research with a Cabrini College Science faculty member. The criteria for selection and requirements of the course are determined by the faculty member and the student must complete an Undergraduate Research Proposal (See pg. 32). Students may enroll in RBIO/RCHE 466 multiple times. If the course is used to fill the capstone experience requirement, students must complete oral and written presentation requirements. See your research advisor for details of this requirement. Students may also take the course as a BIO/CHE elective (limit of 3 credits may be applied to the major requirements) or as a free elective.

The College cannot guarantee internship/research lab placement. In the event that placement is unsuccessful, the student will be required to complete an additional 3-4 credit BIO/CHE elective at the 200-level or higher to substitute for the internship experience.

See Cavalier Express Center for most current forms.

Honors in the Major

In addition to Latin honors conferred at graduation and completion of the College honors program, students in the Sciences may also apply for honors within the Department. Earning honors in the major is limited to students with an overall QPA of 3.0 or higher, a science QPA of 3.5 or higher, and to those having been accepted to one of the science honor societies. Students must also complete an independent research project (3 credit minimum of RBIO/RCHE 466) with a faculty member in the Science Department and present their work at a regional or national conference. The following application should be submitted to the department chair no later than one semester prior to graduation. (Form is available online)

Application for Honors in the Science Department

Name _____

College ID Number _____

Major _____ Track _____

Month and year of expected graduation _____

The following requirements must be met to graduate with Honors in the Department

1. File this application with the Chair of the Science Department;
2. Have a overall QPA of at least 3.00 at the time of graduation;
3. Have a QPA in all majors-level Science courses (BIO, CHE, ENS, PHY; MAT 131 is included for chemistry majors) taken at Cabrini of at least 3.50 at the time of graduation;
4. Complete and give a public presentation (poster or oral) at a conference (other than at Cabrini College) on a research project, done in collaboration with or under the supervision of a full-time member of the Science Department , and
5. Be a member of the Cabrini chapter of *Beta Beta Beta*, a national biological honor society or *Gamma Sigma Epsilon*, a national honor society for chemistry majors.

I acknowledge that the filing of this application does not guarantee that I will graduate with Honors in the major, and that to achieve that status, I must meet all the requirements stated above at the time of graduation.

Applicant's Signature

Date

Department Chair's Signature

Date

Double Majors

Some students may elect to pursue a double major to gain extensive skills in another field or to pursue a unique career path. Students are suggested to begin courses in their second major as early as possible, but be aware that completing two majors generally requires a student to far exceed the 123 credit graduation minimum and may not allow completion of the degrees within four years. Since this can also be academically rigorous, it is suggested that only students with strong QPA's attempt a double major. Students may not earn a double degree by completing the requirements of two tracks within a major.

Student double majoring in Biology and Chemistry are only required to take two capstone courses, one Senior Seminar and one Internship/Research/Student Teaching, not two for each major. In this case, to meet American Chemistry Society curriculum guidelines, the Senior Seminar project must be biology based and the Internship/Research/Student Teaching must be chemistry based. There may be no overlap of the content/topic used for these courses.

Minor Requirements

All students are encouraged to consider developing a minor to expand their knowledge in another discipline. The requirements for all minors are listed within the current Cabrini College Catalog. The Science Department offers minors in Biology, Chemistry and Environmental Science. Awarding of all Science Department minors requires a minimum of a 2.0 QPA in all required and elective minor courses. Students must take at least two courses not already required in their major to earn a minor in one of these science fields. Students not already a member of the Science Department must meet requirements necessary to be accepted into the Department to take courses past BIO 102, CHE 112, and PHY 102.

Biology Minor Requirements

BIO 101	4 credits
*BIO 102	4 credits
*1 BIO lab course (200+-level)	4 credits
*3 additional BIO courses (200+-level)	9 credits
<hr/>	
Total	21 credits

*Students must meet all required course prerequisites to enroll. Students may not use BIO 248 – Biological Application of Earth Science, BIO 444 – Senior Seminar, BIO 488 – Internship, BIO 489 – Curriculum Methods or RBIO 466 – Research Biology for the minor.

Chemistry Minor Requirements

CHE 111	4 credits
*CHE 112	4 credits
*CHE 211	4 credits
*3 additional CHE courses (200+-level)	9 credits
<hr/>	
Total	21 credits

*Students must meet all required course prerequisites to enroll. Students may not use CHE 444 – Senior Seminar, CHE 488 – Internship, CHE 489 – Curriculum Methods or RCHE 466 – Undergraduate Research for the minor.

Environmental Science Minor Requirements

BIO 101	4 credits
*BIO 102	4 credits
*BIO 348 – Ecology	4 credits
*Select from the following:	6 credits
BIO 209 – Field Biology/Costa Rica Sea Turtle Ecology, ENS 320 – Environmental Chemistry, PHI 326 – Environmental Ethics, ENS 210 – Wetlands Ecology OR BIO 211 – Watershed Ecology (NSF course), or other 200-level or higher BIO/ENS courses with approval of Department Chairperson	
<hr/>	
Total	18 credits

*Students must meet all required course prerequisites to enroll.

Students declaring this minor may need to take select courses at an affiliate or other college. Students not declaring this minor in their freshman year may be unable to complete the minor prior to graduation.

Registration Procedures

Registration for Courses

During the summer prior to admission and at the mid-point of each semester, you will register for the next semester's courses. Registration materials and dates will be mailed to you several weeks ahead of time. Prior to the registration period, make an appointment with your advisor to discuss your course selections and fill out a "Registration Roster". Before your meeting, make a list of courses you would like to take or that fill your college requirements. Remember that you may not always get your first choice of times or classes, so come prepared with several alternates. Students wanting to maintain full-time status must register for a minimum of 12 credits/semester. Students may take up to 18 credits without special permission. Only upper division students with a QPA of 3.0 or higher may attempt more than 18 credits with permission of their advisor. A list of open courses is available through the Registrar's page on the Cabrini College web site: www.cabrini.edu. After meeting with your advisor and obtaining their signature on the roster, take the roster to the Registrar's Office or register through CabriniOne at your designated time to complete the process. Registration preference is based on seniority at the college (i.e. students with senior status (>90 credits) register before students with junior status (60-89.5 credits)). Your designated time will be indicated on your registration materials or can be found in the front of the "Class Schedule".

Add/Drop policy

Once your initial roster is submitted, any changes must be completed using a "Course Add Card", if you are adding a course only, or a "Course Add/Drop" if you are either dropping a course or adding and dropping courses. Please see your advisor or the Registrar's Office to obtain and complete these forms. The Add/Drop period usually extends for the first week to week-and-a-half of classes. The specific deadline each semester will be published in the "Class Schedule" or in the "Semester Calendar". After the deadline, courses can no longer be added. Courses dropped during this time period will not be noted on your college transcript.

Withdrawal policy

After the Add/Drop deadline, courses may be dropped by filling out a "Course Withdrawal Card" or filling out the online "Withdrawal Form" prior to the withdrawal deadline published in the "Class Schedule" or in the "Semester Calendar". Courses dropped during this time period will appear on your transcript with a "W" indication. These classes will not be used in calculating your QPA or your total credits completed.

Taking a class at another institution

Upperclassmen may take courses at other 2-year or 4-year colleges. Before registering for the course at another college, please discuss this option with your advisor. You should obtain a copy of the course syllabus from the instructor or provide a copy of the course description in the college's catalog. If approved, your advisor will fill out and sign an "Approval for Credit Taken at Other Institutions" form. This form must also be co-signed by a member of the Academic Affairs staff. While the credits earned at another school may be transferred to Cabrini and the credits will count towards the 123-credit graduation minimum, the grade will not be used in calculating your QPA. The only exceptions to this are classes taken during the Fall or Spring semesters at Eastern College, Valley Forge Military Academy, and SEPCHE institutions with whom we have reciprocal agreements.

Students enrolled in any of the Science majors (Biology, Chemistry) may not take any science courses off campus without prior approval of their advisor or department chair. The only class equivalents that can be taken off campus at a 100-level are those equivalent to BIO 101/102, CHE 111/112, and PHY 101/102. These courses must be designed for majors, must be four or more credits and must have a lab component. Any 200-level or higher course required at Cabrini College must be taken at a 200-level or higher and may not be more than one class level below the equivalent course at Cabrini. Examples include if a student wants to take BIO 230 – Human Anatomy and Physiology off campus to meet graduation requirements, they may not enroll in a 100-level A+P course at a community college or if they want to take BIO 440 – Biochemistry I off campus, a 200-level biochemistry course cannot be used, but a 300- or 400-level can. Students enrolled in Pre-Professional programs (Pre-Nursing, Pre-Occupational Therapy, Pre-Pharmacy, Pre-Physical Therapy) that do not intend to graduate from Cabrini College and are just filling course prerequisites must abide by the same rules if they want to transfer specific courses to Cabrini. If the above rules are not followed, students may transfer in the credits as "Science core" only to facilitate receipt of financial aid and to make satisfactory academic progress.

CLEP/DANTE/AP credit

Students may also earn credit towards graduation through the CLEP, DANTE or AP programs. Students must earn a grade of 4 or 5 on AP science-based exams to earn credits towards graduation. A list of currently accepted exams can be found in the College Catalog.

Declaring a major or minor

Although you may have indicated a major and/or minor on your application form for the College, you are not officially admitted into the major/minor until you complete the "Application for Undergraduate Major/Minor" form. Students must also meet the admission standards of the Department as outlined previously in this handbook. It is suggested that you complete this form before your sophomore year, so you can be assigned to an appropriate departmental advisor. Forms can be obtained in the Registrar's Office and must be signed by the Departmental Chair.

Graduation applications

And finally, an application for graduation is required prior to the completion of your degree requirements. You will be informed by mail as to the deadlines for graduation. "Applications for Graduation" are available at the Registrar's Office.

Grading Policies

Grading System

Cabrini College uses the 4.0 grading system to evaluate students' achievements in a course. Each letter grade is assigned a numerical value called quality points as follows:

<u>Letter Grade</u>	<u>Quality Points</u>
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
F	0.00

Quality Point Average (QPA)

Your quality point average (QPA) is the same as a GPA. The QPA is calculated by dividing the total number of credit hours attempted in classes with A→F letter grades into the total number of quality points earned. To calculate the number of quality points earned for each course, multiply the quality point value for the letter grade you earned and multiply it by the number of course credits for that class. For example, if you earn a B in a 4 credit class, you earn 3.00 (quality points for a B) x 4 (credits for the class) = 12.00 total quality points.

The following letter grades may be present on your transcript, but are not used in calculating the QPA:

P (pass)	PH (pass with honors)	I (incomplete)
IP (in progress)	NG (no grade)	NR (not reported)
NC (no credit)	TR (transfer)	W (withdrawn)
AU (audit)	CR (credit)	

Also, if a class is repeated to earn a different grade, you will only earn credit for taking the course once. The quality points used to calculate QPA will be based on the last grade received in the course, even if is a lower grade. Note that your transcript will show all attempts at taking a class.

Here's an example of calculating your overall QPA:

Course	Letter Grade	Quality Points	Course Credits	Total Quality Points Earned
BIO 101	B	3.00	4 credits	12.00
CHE 111	A-	3.67	4 credits	14.68
ECG 100	F	0.00	3 credits	0.00
IST 125	W	0.00	0 credits	0.00
SPA 101	C+	2.33	3 credits	6.99
			14 credits	33.67 quality points

so your QPA = $33.67 / 14 = 2.405$.

Warning Notices

If a student is at risk of earning a D or F grade at the mid-point of the semester (prior to the Withdrawal deadline), instructors for those courses may fill out a "Warning Notice" form that is sent to the student, their advisor, and the Academic Dean. This notice is to make you aware of poor performance in a class and may include instructor's suggestions for your improvement.

Department Grading Standard

Each member of the Science Department sets and upholds their own grading policies. All policies are clearly stated in the syllabus provided for each course. Please refer to individual faculty with questions regarding their grading standards and policies.

Departmental Grievance Policy

It is hoped that your relationships with the faculty will be academically rewarding, respectful, and fair, however, if a grievance does occur the following procedures should be employed:

1. Discuss the grievance within six weeks following the end of the semester with the faculty member involved and attempt to settle the issue.
2. If the student is not satisfied with this resolution, within a two week period, he/she should lodge a formal complaint with the Chair of the faculty's department. The student should prepare documentation of the grievance if possible. The chairperson, faculty member, and student will attempt to resolve the problem. If the chair is the focus of the complaint, the student should proceed directly to step 3.
3. If an acceptable solution cannot be reached after steps 1 and 2 have been completed, the student may lodge a formal, written grievance with the Academic Affairs Office within two weeks. The Dean for Academic Affairs or his/her designees will attempt to resolve the issue.
4. If the student is still unsatisfied, the student may appeal the issue to the Academic Grievance Board, which will make the final recommendation for resolution.

Academic Honesty Policy

Academic honesty is expected on all work completed towards your academic degree. Acts of dishonesty include, but are not limited to, cheating, plagiarism, allowing another student to cheat from or copy your work, copying your work from that of another students, data fabrication, and misrepresentation for the purpose of making-up an exam or extension of assignment deadlines. Details of the academic honesty policy and penalties can be found in the Student Handbook and the College Catalog. Each instructor will provide you with additional information regarding their particular policies and penalties in their course syllabus.

In addition to the course-related penalties, faculty may withhold support for a student for admission to medical, graduate, and/or professional school programs.

Departmental Organizations and Societies

Science Club

The Science Club welcomes all Cabrini students with an interest in science. It meets several times each semester. The club sponsors speakers, field trips and parties and has also participated in the hiring of new Science faculty. Flyers announcing meeting times and events are typically posted throughout the Iadarola Center's 2nd and 3rd floor.

Beta Beta Beta

Tri-β is the national undergraduate honor society in biology. The Lambda Rho Chapter was chartered at Cabrini in 1974. Biology majors with an overall QPA of 3.0 or greater after completing 3 or more semesters of a 4-year curriculum and a BIO QPA of 3.0 or greater after the completion of 12 credits in BIO courses are eligible for induction as regular members. Associate membership is open to any student who meet these credentials. Dr. Nielsen is the faculty advisor to this society.

Gamma Sigma Epsilon

The Rho Chapter of ΓΣΕ, the National Chemistry Honor Society, invites students who excel in the area of chemistry to apply for membership. Active membership of the Chapter is composed of students who have completed a minimum of 16 credit-hours in chemistry and are declared major or minors in the field. Students must have a minimum grade point average of 3.0 in all CHE courses and at least a 3.0 overall grade point average. Biology majors who meet the minimum chemistry credits are also eligible for membership. ΓΣΕ's faculty advisor is Dr. Harrison.

Advising

Academic Advising

Academic Advising begins in the summer prior to your freshman year when you meet your instructor for COL 101 – College Success Seminar. This faculty member will serve as advisor until you formally declare a major. After that, you will be assigned a full-time faculty advisor in your department based on your career interests and goals. Your faculty advisor will assist you with course scheduling, academic progression, and career planning.

Tutoring

The College's Center for Teaching and Learning is dedicated to helping students reach their full academic potential. Support services include peer tutoring, a writing center and a math center, and are available to all students free of charge. Contact the Center at 902-8213 to schedule tutoring services or if you would like to serve as a tutor.

Counseling Services

Counseling, consultation, and psychological services are available on campus free of charge to students. Please call 902-8566 or 902-8561 to schedule an appointment. Campus ministry (902-8225) also offers student support and guidance.

Disability Resource Center

Students with identified physical or learning disabilities are eligible to receive support services from Cabrini's DRC office. Contact 902-8572 for more information.

Career and Postgraduate Education Services

Your academic advisor will assist you in focusing your career interests and guide you through the process of applying for jobs, graduate school, the GRE's or MCAT's. BIO/CHE 315 – Introduction to Scientific Presentations and BIO/CHE 444 – Senior Seminar will also address many of these issues formally. Career guidance is also available through the office of Cooperative Education and Career Services. This office provides individual career counseling and testing to assess your interests, skills, values, experiences, and to review resumes. The office also contains a career resource library, alumni connections and organizes career fairs. You may stop in to their Grace Hall office or call Nancy Hutchison at 902-8304 or 8305 to arrange a conference.

Lab Safety Policies

Cabrini College's complete Chemical and Biological Hygiene Plan is available for review at <http://www.cabrini.edu/science/Message%20Board/Chemical%20and%20Biological%20Hygiene%20Plan%20-%20Science%20Department%20-Updated%2012-07-05.doc>. All students are required to familiarize themselves with standard lab safety practices and complete a lab safety contract in each lab course at the College.

If a student is breastfeeding, pregnant or believes they may be pregnant, it is their responsibility to notify the faculty member immediately. Exposure to some chemicals/materials may be harmful.

If a student has any allergies or chemical sensitivities, it is their responsibility to notify the faculty member immediately.

In both cases the faculty member, lab safety and chemical hygiene officer (if needed), and student will meet to discuss accommodations for the course.

Failure to comply with safety practices and policies may result in potentially result in dismissal from a class session and reduction in course grade. ***Egregious and/or repetitive infractions may also result in failure of or dismissal from a course or even the department and major, without a probationary period.***

Standard Laboratory Safety Practices

1. No student or faculty member will be permitted into any laboratory of the Science Department of Cabrini College without having been properly trained in all safety procedures, and having signed and dated the Cabrini College Safety Contract.
2. No eating, drinking, or smoking is permitted.
3. Pipetting by mouth is prohibited.
4. Storage of food and drink is limited to non-laboratory areas.
5. Cosmetics must not be applied in the labs.
6. Proper hygiene includes frequent hand washing, especially prior to leaving the laboratory.
7. Lab coats or special clothing required in containment areas must be worn and buttoned in the laboratory, and removed when moving outside of the laboratory. At any time, clothing must be worn that covers a substantial portion of the skin. For example, bare midriff clothing, shorts, gym trunks, "ripped" jeans, and skirts are prohibited.
8. Glass and sharp objects must be disposed of in specially marked containers.
9. Lab benches must be cleaned regularly. In the event of spills or contamination, cleanup is to be done immediately.
10. Animals not involved in the project are not permitted in the laboratories.
11. Long hair must be tied back, and jewelry must be removed before entering the laboratory.
12. Shoes that cover and protect the feet must be worn in the laboratory, Open toe shoes, high heels, and sandals are strictly forbidden in the laboratory. Any student so dressed will not be permitted to complete the laboratory exercise.
13. Gloves should be worn during any laboratory exercise where skin contact with chemicals is possible.
14. A safety shield must be used when working with highly reactive chemicals and mixtures.
15. Others in the laboratory must be alerted before the lighting of any flames.
16. Assemble laboratory apparatus away from the edge of the laboratory bench.
17. Glassware must be inspected before use, and glassware with obvious flaws, chips, or breaks must be discarded.
18. Laboratory hoods must be used when working with chemicals that are toxic, corrosive, irritating, or flammable.
19. Drawers & cabinets must be closed at all times, except when actually inserting or removing an item.

Student Safety Contract

1. Wear the required safety eye protection (safety glasses) in the laboratory at all times. Contact lenses **MUST NOT** be worn in the laboratory when chemicals are used.
2. Wear shoes at all times that provide protection to your feet. Sandals and open top shoes are not permitted in the laboratory.
3. Long hair must always be tied back. Long hair is a serious fire hazard.
4. Wear clothing which covers most of the body. No belly buttons please.
5. Never eat, drink, chew gum, or smoke in the laboratory. These activities are strictly prohibited. Never apply make up.
6. Consider all chemicals to be dangerous (hazardous) unless you are specifically instructed otherwise. Read labels carefully.
7. Never taste chemicals.
8. Never smell (inhale) gases or vapors directly. When you are **INSTRUCTED TO REPORT THE ODOR OF A CHEMICAL**, gently waft the vapors toward your nose and **SMELL CAUTIOUSLY** as described by instructor.
9. If the chemicals come in contact with your eyes or skin, wash immediately with large amounts of water. **CALL FOR HELP WHILE YOU ARE WASHING**. Contaminated clothing should be removed.
10. Never rub your eyes in lab. Wash your hands with soap and water often, especially after you complete the laboratory experiment.
11. Volatile chemicals that are poisonous, irritating to the skin, or that have unpleasant odors should always be used under the fume hood.
12. Never point a test tube or any other reaction vessel toward yourself or anyone else. Chemicals undergoing reaction may spatter over a large area.
13. Most organic liquids are flammable, as are some gases such as hydrogen. Never use flammable chemicals near a flame or a hot hot plate.
14. Clean up all broken glass immediately. Similarly, spilled chemicals should be cleaned up immediately. **LOOK BEFORE LEANING ON LAB BENCH. DO NOT PLACE ELBOW IN PUDDLE.**
15. Always pour **CONCENTRATED** acids in water, never water into acid. Sulfuric acid, for example, releases enough heat to cause spattering. Hot concentrated acids are very corrosive.
16. Observe carefully the safety precautions that are included in the experiments.
17. Always be alert to the possibility of an accident by your neighbors. You could be a victim of their mistakes. Always advise them of any unsafe practices you observe. If necessary, inform your instructor immediately.
18. Always maintain an orderly, businesslike attitude and a clean, orderly working space. Horseplay may get you expelled from the lab.
19. Students are **NEVER** to work alone in the laboratory. The instructor must always be present.
20. Unauthorized experiments and unauthorized modifications of experiments are strictly prohibited.
21. If you have any doubt about what to do in any set of circumstances, consult your instructor.
22. Always keep laboratory drawers and doors to laboratory desks closed except when you are placing something into or removing something from your drawer or desk. Open doors and drawers obstruct the aisle. Such obstruction may cause serious accidents.
23. Do not return excess chemicals to their original containers.
24. Put paper waste and glass waste in waste containers.
25. Report broken equipment to your instructor immediately.
26. Chemicals are **NEVER** to be taken from the laboratory.
27. Locate all safety equipment: a. fire extinguisher ;b. emergency shower ;c. eye wash fountain; d. first aid kit; e. nearest telephone

Science Department Guidelines for Laboratory-Based Independent Student Projects

Effective June 2015

Below are specific regulations regarding independent student work in the labs in the Science Department that pertain to all science majors and non-majors enrolled in science courses, effective immediately. All full-time and part-time faculty are expected to follow these rules in order to be in compliance with departmental policy.

1. All supervising faculty members in charge of students conducting independent projects must be present when any chemical considered hazardous is being used.

Note: In the case of RBIO/RCHE 466/468 students, this restriction is modified as following: Following significant training and understanding of MSDS documentation, students enrolled in RBIO/RCHE 466/468 courses may work without the immediate supervision of full-time faculty members, but only if working with another research student, and only between the hours of 7 a.m. – 10 p.m., including weekends. Faculty supervisors for RBIO/RCHE 466/468 must be made aware of when students are conducting their work, the name of the accompanying person, and the chemical reagents involved.

2. Only faculty may acquire or request chemicals from the storage area in the basement. Students are never permitted to have access to the chemical storage or waste disposal areas in the basement.

3. The supervising faculty member is responsible for overseeing the labeling of hazardous materials (stock/working solutions, experimental in progress, etc.), and hazardous waste associated with all laboratory activities. Labeling will be conducted according to the posted guidelines in the satellite accumulation areas for hazardous waste.

4. Students conducting independent laboratory-based projects in any science course, must submit a written document outlining their project design and identifying all laboratory equipment and reagents that will be used in advance of the project start date. All MSDS documents associated with chemicals used in projects must be read by students in advance of conducting their experiments, and the chemical hygiene officer must be informed of any hazardous substances that are under consideration. If the chemical hygiene officer has any concerns about the experimental design or chemicals requested, then the department chair must be contacted for final approval. Pending approval, faculty can request students to have access to the lab outside class times. For major-level classes students may be granted limited 7 day access 8am-4pm as deemed needed. For non-major-level classes students may be granted limited access Monday-Friday 8am-4pm access as needed.

6. Upper division students/classroom coaches/ lab assistance may not oversee labs in the absence of a supervising faculty member. If a faculty misses a lab for illness/conference, another faculty member must cover the lab, or the lab will be cancelled and alternative activities assigned.

7. Students not currently enrolled in a science course may not enter a science lab for any reason. Science students have access only to specified laboratory spaces approved by their faculty supervisor.

Submitted by Dr. Anne Coleman (Chair of Science) for approval by Dr. Jeff Gingerich (Provost and Vice President of Academic Affairs) Approved by Department May 2015, Approved by Academic Affairs June 2015

FOR STUDENT'S RECORDS

Receipt of Science Department Student Handbook

By signing this document, you acknowledge your receipt of the Science Department Student Handbook.

I agree to read the handbook and take responsibility for understanding its' contents.

I will abide by all policies, procedures, and requirements as outlined in its' pages.

I understand that it is my responsibility to review updated information on an annual basis by referring to handbook updates on the Science Department webpage, www.cabrini.edu/science or by requesting an updated handbook from the Department Chairperson.

Student name (printed)_____

Student name (signature)_____

Date_____

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FOR DEPARTMENTAL RECORDS

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Student name (printed)_____

Student name (signature)_____

Date_____