

Science Department Student Handbook 2011-2012

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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 recently redesigned our Biology and Chemistry majors to provide you with more flexibility in selecting the courses you want to meet your career goals and we're housed in the \$18,000,000.00 Antoinette Iadarola Center for Science Education and Technology. 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.

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 two- or 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,

Kimberly L. Boyd, Ph.D.
Associate Professor of Biology
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 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 graduation requirements in place during the academic year in which they were enrolled. Secondary Education students must meet certification criteria valid at their time of certification.**

Science Department Faculty Information

Full-time faculty

Dr. Kimberly Boyd is an Associate Professor of Biology and Chair of the Science Department. She received her Ph.D. in Physiology from the University of Virginia in 1992 and completed postdoctoral research at the University of California, Berkeley and Princeton University in the fields of ion transport mechanisms in muscle and epithelium and control of cell division, respectively. She teaches Biological Science I, Human Anatomy and Physiology I and II, General Physiology, Biological Evolution, Health and the Human Body, and Forensic Science. Dr. Boyd specializes in advising transfer students and serves as the Pre-Medicine director. She is the advisor for Beta Beta Beta biology honor society and is the Coordinator of First-Year Advising for the College.

Office: IAD 208 Phone: 610-902-8397 e-mail: kboyd@cabrini.edu

Dr. Anne Coleman is an Assistant Professor of Life and Physical Sciences. She received her neuroscience Ph.D. from Allegheny University. She teaches Life and Physical Science for Elementary Education majors, Health and the Human Body and Neuroscience. Dr. Coleman serves as the advisor for students in the Biology/Biological Sciences and Biology/Secondary Education certification majors.

Office: IAD 204 Phone: 610-902-8114 email: amc729@cabrini.edu

Dr. David Dunbar is an Associate Professor of Biology. He received his Ph.D. from Lehigh University in Molecular Biology. He also serves as a Visiting Assistant Professor at Yale University studying small nucleolar RNA and ribosomal subunit biogenesis. Dr. Dunbar teaches Biological Science I and II – Phage Genomics, Genetics, Cell and Molecular Biology, Developmental Biology, Forensic Science, Wetlands Ecology, and Genetics and Heredity. Dr. Dunbar serves as a Biology/Biological Sciences advisor.

Office: IAD 220 Phone: 610-902-8770 e-mail: ddunbar@cabrini.edu

Dr. Sherry Fuller-Espie holds the rank of Professor of Biology. She received her Ph.D. and DIC in 1987 from the 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 innate immune responses in *Eisenia fetida*, the earthworm. She teaches Theory and Practice in Biotechnology, Immunology, Virology, General Microbiology, Animal Behavior, and Nutrition. Dr. Fuller-Espie is the academic advisor for majors in Biology/Molecular Biology & Biotechnology and Biology/Pre-Medicine.

Office: IAD 222 Phone: 610-902-8369 e-mail: sf723@cabrini.edu

Dr. Melinda Harrison joined the Science Department as an Assistant Professor of Chemistry. She earned her Ph.D. at Duquesne University. Her biochemistry research interests focus mainly on studying metals in biology specifically in copper metabolism; selenium metabolism and also wine chemistry research. Dr. Harrison teaches Biological Science I and II – Phage Genomics, Forensic Science, General Chemistry I and II, Biochemistry I and II, Analytical Chemistry and Instrumental Chemistry. Dr. Harrison advises students in the Pre-Allied Health programs.

Office: IAD 304 Phone: 610-902-8504 e-mail: mah348@cabrini.edu

Dr. Carrie Nielsen serves as an Assistant Professor of Biology and Environmental Science. Dr. Nielsen earned her Ph.D. at Stanford University. She teaches Biological Science II, Biological Perspectives of Environmental Science, Terrestrial Ecosystems, Wetlands Ecology and Ecology. She is also the faculty director of the EARTH Living and Learning Community. 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. Dr. Nielsen is one of the Department's Biology/Pre-Medicine advisors.

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 1993 from the University of Washington and completed postdoctoral work at the University of California, Irvine in the field of Organic Chemistry. His interests include synthesis and study of theoretically interesting and biologically important molecules, such as highly pyramidalized olefins. Dr. Smith teaches General Chemistry I and II, Organic Chemistry I and II, Inorganic Chemistry, Astronomy, Forensic Science, Combinatorial and Computational Chemistry, and College Success Seminar. Dr. Smith serves as the Chemistry major and Pre-Pharmacy program advisor.

Office: SET 308 Phone: 610-902-8585 e-mail: js732@cabrini.edu

Part-time faculty maintain offices in IAD 310. Messages may be left the Faculty Support Office at 610-902-8310.

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. Recently, the College approved a new core curriculum that is being implemented with all first-year students starting in 2009-2010. 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 new 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.

Students in Pre-Professional Programs: Cabrini College does not have "majors" in allied health programs and students in pre-professional programs (Pre-Nursing, Pre-Occupational Therapy, Pre-Pharmacy, and Pre-Physical Therapy) do not receive a degree from Cabrini College. This option allows students to prepare for admission to a transfer institution. Most course requirements for each program are determined by the transfer institution. Some courses, such as COL 101, ECG 100/200 are mandatory for all Cabrini students in their first two years. Students with career interests in nursing, occupational therapy, pharmacy, and physical therapy wishing to earn a four-year degree must select and meet the graduation requirements for an approved major (Biology, Chemistry, Exercise Science and Health Promotion, Psychology, etc.) and will be advised by faculty within that specific department when that major is declared.

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.

You should receive your placement results during COL 101 – College Success Seminar. 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 MAT 117/118 (Science, Exercise Science, Math, Computer Science, and Psychology majors only)
	Honors level:	MAT 130 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

**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 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 or the Pre-Professional Allied Health programs 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
- 2.67 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 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:

<u>Credits completed</u>	<u>Grounds for warning, probation, or dismissal</u>
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), students declared in the Biology or Chemistry major or in the Pre-Nursing, Pre-Occupational Therapy, Pre-Pharmacy, or Pre-Physical Therapy programs will have their departmental GPA's evaluated each semester. 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 466 – Research. Also, students who have any academic honesty violations on record with the College will not be permitted to register for RBIO/RCHE 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. Biochemistry
2. Molecular Biology
3. Cell Biology
4. Genetics
5. Taxonomy and Diversity of Life
6. Animal Structure and Physiology
7. Ecology and Environmental Science
8. Evolution

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

Concentration 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 or HBIO 101/102– Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 348 - Ecology	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 231 - Human Anatomy + Physiology II or BIO 301 – General Physiology	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
◆ *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	<u>8 credits</u>
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 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/Biological Sciences Student Progress Record (2011-2012)

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

Engagements: ____ ECG 100 ____ ECG 200 ____ ECG 300

Explorations: ____ H ____ V ____ I ____ A

Literacies: Information ____ IST 125

Religious ____ REL

Scientific ____ BIO 101 ____ PHY 101

Quantitative ____ MAT 117 or MAT 130 or EXEMPT
____ MAT 118 or MAT 313

Cross Cultural: ____ and ____ (101/102-level)
OR ____ (102, 201 or EXEMPT)

Other: ____ COL 101 ____ ENG 100 (if required) ____ MAT 098/099 (if required)

Major

Biology: ____ BIO 102 ____ BIO 206 ____ BIO 263
____ BIO 231 or 301 ____ BIO 315 ____ BIO 348
____ BIO 444 (Part 1) ____ BIO 444 (Part 2)
____ BIO 488 or RBIO 466
____ BIO elective ____ (Lab-based)
____ BIO elective ____
____ BIO elective ____

Chemistry: ____ CHE 100 (if required)
____ CHE 111
____ CHE 112
____ CHE 211

Physics: ____ PHY 102

Electives

Complete electives to reach 123 credits.

Biology Major

Concentration 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 or HBIO 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/CHE 441, CHE 201, CHE 316, CHE 407	<u>3-4 credits</u>
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 (2011-2012)

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

Engagements: ____ ECG 100 ____ ECG 200 ____ ECG 300

Explorations: ____ H ____ V ____ I ____ A

Literacies: Information ____ IST 125

Religious ____ REL

Scientific ____ BIO 101 ____ PHY 101

Quantitative ____ MAT 117 or MAT 130 or EXEMPT
____ MAT 118 or MAT 313

Cross Cultural: ____ and ____ (101/102-level)
OR ____ (102, 201 or EXEMPT)

Other: ____ COL 101 ____ ENG 100 (if required) ____ MAT 098/099 (if required)

Major

Biology: ____ BIO 102 ____ BIO 206 ____ BIO 263 ____ BIO 308 ____ BIO 312
____ BIO 315 ____ BIO 318 ____ BIO 420 ____ BIO 440 ____ BIO 444 (Part 1)
____ BIO 444 (Part 2) ____ BIO 488 or RBIO 466

Chemistry: ____ CHE 100 (if required)
____ CHE 111 ____ CHE 112
____ CHE 211 ____ CHE 212

Physics: ____ PHY 102

Elective: ____ BIO/CHE 441, CHE 201, CHE 316, or CHE 407

Electives

Complete electives to reach 123 credits.

Biology Major

Concentration 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 or HBIO 101/102– Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 231 – Human Anatomy and Physiology II or 301 – General Physiology	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 concentration 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 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 12 credits in BIO courses at Cabrini College to earn a degree from the department.

Biology/Pre-Medicine Student Progress Record (2011-2012)

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

Engagements: ____ ECG 100 ____ ECG 200 ____ ECG 300

Explorations: ____ H ____ V ____ I ____ A

Literacies: Information ____ IST 125

Religious ____ REL

Scientific ____ BIO 101 ____ PHY 101

Quantitative ____ MAT 117 or MAT 130 or EXEMPT

____ MAT 118 or MAT 313

Cross Cultural: ____ and ____ (101/102-level)

OR ____ (102, 201 or EXEMPT)

Other: ____ COL 101 ____ ENG 100 (if required) ____ MAT 098/099 (if required)

Major

Biology: ____ BIO 102 ____ BIO 206 ____ BIO 263 ____ BIO 231 or 301 ____ BIO 308

____ BIO 315 ____ BIO 440 ____ BIO 444 (Part 1) ____ BIO 444 (Part 2)

____ BIO 488 or RBIO 466

____ BIO elective _____

____ BIO elective _____

____ BIO elective _____

Chemistry: ____ CHE 100 (if required)

____ CHE 111 ____ CHE 112

____ CHE 211 ____ CHE 212

Physics: ____ PHY 102

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. Kimberly Boyd 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	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 3.33 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

Accelerated Dental Medicine Curriculum

Students intending to earn a 3+4 Bachelor of Science in Biology/Pre-Medicine 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 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. Please contact Dr. Kimberly Boyd 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	8 credits
BIO 206 – Cell and Molecular Biology	4 credits
BIO 263 – Genetics	4 credits
BIO 301 – General Physiology	4 credits
BIO 308 – General Microbiology	4 credits
BIO 315 – Introduction to Scientific Presentations	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 BIO 488 – Internship	credit for courses in Preventive Dentistry, Restorative Dentistry, Dental Materials, Introduction to Periodontology (16 credits)

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 who have received prior approval to take classes off campus from the Pre-Dental advisor;
- ◆ earned a B- or higher in all required courses plus a 3.33 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 prior to June 30 of the admission year to TUSD.
- ◆ To meet Temple University's requirements, students must earn a 3.2 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 (5+3 or 4+4 options).

Biology/Pre-Medicine

Accelerated 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. Kimberly Boyd 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 3.3 QPA overall
 - Achieve a 3.3 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 an interview with the M.M.S. program director at Arcadia University

Biology Major

Concentration in Secondary Education Certification

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

◆ BIO 101/102 or HBIO 101/102– Biological Science I and I	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 208/208L or BIO 348- Ecology and Ecology Lab	4 credits
◆ BIO 248 - Biological Applications of Earth Science	1 credit
◆ BIO 263 – Genetics	4 credits
◆ BIO 315 – Introduction to Scientific Presentations	1 credit
◆ BIO 444 - Senior Seminar	3 credits
◆ BIO 489 - Biological Curriculum and Methods	3 credits
◆ *3 BIO electives (One must be at the 300-level or higher.)	9 credits
◆ CHE 111/112 – General Chemistry I and II	8 credits
◆ CHE 211 – Organic Chemistry I	4 credits
◆ EDU 200 – Sophomore English Language Learner Field Experience	1 credit
◆ EDU 304 – Foundations of Education	3 credits
◆ EDU 330 – Junior Special Education Field Experience	1 credit
◆ PHY 101 – General Physics I	4 credits
◆ SEC 202 – Secondary Field Experience in Secondary Education	1 credit
◆ SEC 303 – Reading and Writing in Content Areas	3 credits
◆ SEC 389 – Seminar in Secondary Education	4 credits
◆ SEC 402 – Senior Field Experience	2 credits
◆ SEC 490 – Student Teaching and Practicum	12 credits
◆ SPE 110 – Introduction to Developmental Psychology and Learning Theory	3 credits
◆ SPE 302 – Assessment 1	3 credits
◆ SPE 320 – Instructional Strategies for Learners with Diverse Needs	<u>3 credits</u>
Total:	89 credits

*Acceptable BIO electives include:

BIO 205 - Animal Behavior, BIO 225 - Parasitology, BIO 230 - Human Anatomy and Physiology I, BIO 231 - Human Anatomy and Physiology II, BIO 250 - Nutrition, BIO 301 - General Physiology, 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 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 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/Secondary Education Certification 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 12 credits in BIO courses at Cabrini College to earn a degree from the department.
- ◆ Students must achieve and maintain an overall 3.0 QPA or higher after the 1st year to be eligible for certain EDU and SEC courses and to meet State certification standards.
- ◆ Students must pass the PRAXIS I Core Battery exams during their 1st year to be eligible for sophomore status and to take EDU and SEC courses. These include PPST Mathematics (0730), PPST Reading (0710), and PPST Writing (0720). Contact the Education Department for test registration guidelines.
- ◆ Students must pass the PRAXIS II Subject test Biology: Content Knowledge (20235) and Principles of Learning and Teaching (0524) prior to receiving Pennsylvania State Certification in Biology Secondary Education. Contact the Education Department for test registration guidelines.

Biology/Secondary Education Certification Student Progress Record (2011-2012)

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

Engagements: ____ ECG 100 ____ ECG 200 ____ ECG 300

Explorations: ____ H ____ V ____ SPE 110 (I) ____ A

Literacies: Information ____ IST 125

Religious ____ REL

Scientific ____ BIO 101 ____ PHY 101

Quantitative ____ MAT 117 or MAT 130 or EXEMPT

____ MAT 118 or MAT 313

Cross Cultural: ____ and ____ (101/102-level)

OR ____ (102, 201 or EXEMPT)

Other: ____ COL 101 ____ ENG 100 (if required) ____ MAT 098/099 (if required)

Major

Biology: ____ BIO 102 ____ BIO 206 ____ BIO 348 ____ BIO 248

____ BIO 263 ____ BIO 315 ____ BIO 444 (Part #1)

____ BIO 444 (Part #2) ____ BIO 489

____ BIO elective ____

____ BIO elective ____

____ BIO elective ____

Chemistry: ____ CHE 111 ____ CHE 112

____ CHE 211

Education: ____ EDU 200 ____ EDU 304 ____ EDU 330

____ SEC 202 ____ SEC 303 ____ SEC 389 ____ SEC 402 ____ SEC 490

____ SPE 302 ____ SPE 320

BIOLOGY MAJOR CONCENTRATION COMPARISONS

2011-2012 CURRICULUM - GENERAL EDUCATION REQUIREMENTS

College General Education Requirements

COL 101 ENG 100 [^]
 ECG 100 ECG 200 ECG 300
 HERITAGE (H)
 VALUES (V)
 INDIVIDUAL AND SOCIETY (I)*
 AESTHETIC APPRECIATION (A)
 QUANTITATIVE LITERACY MAT 098/099 [^] MAT117 or 130 or higher* MAT 118 or 313*
 CROSSCULTURAL/GLOBAL LITERACY [^]
 INFORMATION LITERACY IST 125
 RELIGIOUS LITERACY
 SCIENTIFIC LITERACY BIO 101 PHY 101

[^]If required based on freshman placement results.

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

Biology Major Core Requirements

BIO 102 BIO 206 BIO 263 BIO 315 BIO 444
 BIO 488/RBIO 466/SEC 490 CHE 111 CHE 112 CHE 211

Biology Concentration Requirements

	Molecular Biology/ Biotechnology			
	Biological Sciences	Biotechnology	Pre-Medicine	Secondary Ed.
BIO 231/301	<input type="checkbox"/>		<input type="checkbox"/>	
BIO 248				<input type="checkbox"/>
BIO 308		<input type="checkbox"/>	<input type="checkbox"/>	
BIO 312		<input type="checkbox"/>		
BIO 318		<input type="checkbox"/>		
BIO 348	<input type="checkbox"/>			<input type="checkbox"/>
BIO 420		<input type="checkbox"/>		
BIO 440		<input type="checkbox"/>	<input type="checkbox"/>	
BIO 489				<input type="checkbox"/>
BIO ELECTIVE*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BIO ELECTIVE*	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
BIO ELECTIVE*	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
CHE 212		<input type="checkbox"/>	<input type="checkbox"/>	
PHY 102	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Education Req.				<input type="checkbox"/>

*Approved electives for each concentration vary. 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	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	4 credits
◆ *CHE elective	3-4 credits
◆ MAT 131 – Calculus II	4 credits
◆ PHY 101/102 – General Physics I and II	8 credits
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 (2011-2012)

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

Engagements: ____ ECG 100 ____ ECG 200 ____ ECG 300

Explorations: ____ H ____ V ____ I ____ A

Literacies: Information ____ IST 125

Religious ____ REL

Scientific ____ PHY 101 ____ PHY 102

Quantitative ____ MAT 130 or EXEMPT

Cross Cultural: ____ and ____ (101/102-level)
OR ____ (102, 201 or EXEMPT)

Other: ____ COL 101 ____ ENG 100 (if required) ____ MAT 098/099 (if required)

Major

Chemistry: ____ CHE 100 (if required)
____ CHE 111 ____ CHE 112
____ CHE 201
____ CHE 211 ____ CHE 212
____ CHE 303
____ CHE 315
____ CHE 401
____ CHE 407
____ CHE 440
____ CHE 444 (Part 1) ____ CHE 444 (Part 2)
____ CHE 488 or RCHE 466
____ CHE elective _____

Math: ____ MAT 131

Electives

Complete electives to reach 123 credits.

Chemistry Major with Secondary Education Certification

Students intending to earn a Bachelor of Science in Chemistry with Secondary Education Certification must take PHY 101/102 as their Scientific Literacy, SPE 110 as their Individual and Society Exploration, and MAT 130 as the Quantitative Literacy requirement. Students also complete additional credits in Chemistry, Education, Math and Physics. These certification requirements are current as of August, 2011, but may change depending on state requirements at the time of student certification. The requirements of the major/certification include:

◆ 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	4 credits
◆ CHE 407 – Instrumental Analysis	4 credits
◆ CHE 440 - Biochemistry	4 credits
◆ CHE 444 - Senior Seminar	3 credits
◆ CHE 489 – Chemistry Curriculum and Methods	3 credits
◆ EDU 200 – Sophomore English Language Learner Field Experience	1 credit
◆ EDU 304 – Foundations of Education	3 credits
◆ EDU 330 – Junior Special Education Field Experience	1 credit
◆ MAT 131 – Calculus II	4 credits
◆ PHY 101/102 – General Physics I and II	8 credits
◆ SEC 202 – Secondary Field Experience in Secondary Education	1 credit
◆ SEC 303 – Reading and Writing in Content Areas	3 credits
◆ SEC 389 – Seminar in Secondary Education	4 credits
◆ SEC 402 – Senior Field Experience	2 credits
◆ SEC 490 – Student Teaching and Practicum	12 credits
◆ SPE 110 – Introduction to Developmental Psychology and Learning Theory	3 credits
◆ SPE 302 – Assessment 1	3 credits
◆ SPE 320 – Instructional Strategies for Learners with Diverse Needs	<u>3 credits</u>
	89 credits

Other requirements:

- ◆ Students must meet all course prerequisites to enroll in an upper level course.
- ◆ Students may be required to complete CHE 100 based on their SAT scores and high school courses.
- ◆ 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 or CHE 112 to take upper level Chemistry courses.
- ◆ Students must be accepted into the major to take courses 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 these 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 achieve and maintain an overall 3.0 QPA or higher after the 1st year to be eligible for certain EDU and SEC courses and to meet State certification standards.
- ◆ Students must pass the PRAXIS I Core Battery exams during their 1st year to be eligible for sophomore status and to take EDU and SEC courses. These include PPST Mathematics (0730), PPST Reading (0710), and PPST Writing (0720). Contact the Education Department for test registration guidelines.
- ◆ Students must pass the PRAXIS II Subject test Chemistry: Content Knowledge and Principles of Learning and Teaching (0524) prior to receiving Pennsylvania State Certification in Chemistry Secondary Education. Contact the Education Department for test registration guidelines.
- ◆ No required or related courses in the major may be taken under the pass/fail option.
- ◆ Students must complete a minimum of 12 credits in CHE at Cabrini College to earn a degree from the Science department.
- ◆ 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 the program of required chemistry courses.

Chemistry/Secondary Education Certification Student Progress Record (2011-2012)

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

Engagements: ECG 100 ECG 200 ECG 300

Explorations: H V PSY 101 (I) A

Literacies: Information IST 125

Religious REL

Scientific PHY 101 PHY 102

Quantitative MAT 130 or EXEMPT

Cross Cultural: _____ and _____ (101/102-level)
OR _____ (102, 201 or EXEMPT)

Other: COL 101 ENG 100 (if required) MAT 098/099 (if required)

Major

Chemistry:

CHE 100 (if required)

CHE 111 CHE 112

CHE 201

CHE 211 CHE 212

CHE 303

CHE 315

CHE 401

CHE 407

CHE 440

CHE 444 (Part 1) CHE 444 (Part 2)

CHE 489

Math:

MAT 131

Education:

EDU 200 EDU 304 EDU 330

SEC 202 SEC 303 SEC 389 SEC 402 SEC 490

SPE 302 SPE 320

Electives

Complete electives to reach 123 credits.

Pre-Nursing Tract

The Pre-Nursing program at Cabrini prepares students to enter a professional nursing program leading to a Bachelor of Science in Nursing. Students generally complete the first two years at Cabrini and complete their final two - three years at a transfer institutions. Each transfer institution has its own unique admissions criteria, so the suggested two-year curriculum at Cabrini is for general purposes only. Students who need remedial coursework (i.e. MAT 098/099) or who fail to earn a "C" or higher in course prerequisites will not be able to complete the outlined curriculum in two years. It is the student's responsibility to identify specific nursing programs, speak with that school's admission counselor and determine their specific requirements.

Cabrini College does not have direct transfer agreements with any nursing program, but does have a non-binding articulation agreement with Thomas Jefferson University. Please note that Jefferson maintains the right to alter their admission requirements at any time. Please contact Dr. Melinda Harrison to discuss these options and opportunities in detail.

Pre-Nursing is not a degree-granting major and does not provide any clinical coursework in its curriculum.

Students must meet the criteria to be admitted to the major/program to take science coursework past BIO 102, CHE 112, and PHY 102.

Regardless of their transfer requirements students must complete COL 101, and should complete ECG 100 and ECG 200 at Cabrini College.

Sample Curriculum

First Year

Fall		Spring	
BIO 101	4 credits	BIO 250 - Nutrition	3 credits
#CHE 111	4 credits	CHE 112	4 credits
PSY 101	3 credits	PSY 320	3 credits
ECG 100	3 credits	MAT 118	3 credits
MAT 117 or higher	3-4 credits	Elective	3 credits
COL 101	1 credit		
Total: 15-16 credits		Total: 16 credits	

Second Year

Fall		Spring	
BIO 230	4 credits	BIO 231	4 credits
BIO 308	4 credits	Electives	12 credits
PSY 309	3 credits		
SOC 215	3 credits		
ECG 200	3 credits		
Total: 17 credits		Total: 16 credits	

Other:

- *BIO 102 is highly recommended for preparation for upper division BIO courses, but is not required by
- #CHE 100 may be required based on SAT scores and high school background. CHE 111 cannot be taken without the MAT prerequisite.
- ^Most institutions will not accept ECG 100 and 200 as an English, however, as a Cabrini student you are expected to take Cabrini's general education requirements.
- Most institutions will only accept grades of "C" or higher and most require a QPA above a 3.

For information on nursing programs and the field of nursing check out:

<http://www.nursingschools.com/>

http://www.nlnac.org/Forms/directory_search.htm

<http://discovernursing.com/>

<http://www.jefferson.edu/jchp>

Pre-Occupational Therapy Tract

Beginning January 2007, post-baccalaureate degree entry became the requirement for accredited occupational therapy (OT) programs nationwide. Therefore, there are no accredited baccalaureate programs in occupational therapy. Cabrini does not have an OT major and does not provide any clinical training, but prerequisite coursework can be completed while earning a baccalaureate degree in another field. Upon graduation, students can apply for acceptance into occupational therapy graduate programs as an entry level master's degree (M.S.O.T) or an entry-level doctoral degree (D.O.T.) in occupational therapy depending on the particular program they are interested in. Students must therefore complete a baccalaureate degree in a discipline other than occupational therapy and prerequisite coursework before being accepted into M.S.O.T., or D.O.T. graduate programs. Students may select from a variety of majors at Cabrini College, but must complete the prerequisite courses specified by the specific graduate program. Generally the prerequisites include an overall minimum GPA 3.2, a B- or higher in all prerequisite courses, completion of two semesters of anatomy & physiology, two courses in social sciences, developmental psychology, abnormal psychology or personality theory, statistics (social science based is preferred), and two courses in English. Other eligibility criteria may include GRE, letters of recommendation, criminal background check, volunteer experience and interview. It is the student's responsibility to identify specific programs and contact their admissions office to clarify specific pre-requisite requirements. For more information on OT programs and career, see the American Occupational Therapy Association website at www.aota.org. Please contact Dr. Melinda Harrison to discuss options in detail.

Other Cabrini College Requirements:

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

- Taken all basic science classes at Cabrini College OR who have received prior approval to take classes off campus from the Pre-OT advisor.
- Earned a B- or higher in all required courses plus a 3.2 basic Science QPA OR earned no less than a C in all required courses plus a 3.4 basic science QPA
- Have no record of academic dishonesty at the College

Students must meet the criteria to be admitted to the major/program to take science coursework past BIO 102, CHE 112, and PHY 102.

Students may consider taking prerequisite courses at Cabrini and transferring to another institution. Generally, two years are needed to complete requirements to enter most OT programs. Students who need remedial coursework (i.e. MAT 098/099) or who fail to earn a "C" or higher in course prerequisites will not be able to complete the outlined curriculum in two years. Regardless of their transfer requirements students must complete COL 101, and should complete ECG 100 and ECG 200 at Cabrini College.

Jefferson University does have a BS/MOT transfer program. For more information go to <http://www.jefferson.edu/jchp>.

Sample OT Prerequisites

	<u>Jefferson U (MOT)^</u>	<u>Kean U (NJ) [MOT] ^</u>	<u>Philadelphia U [MOT] ^^</u>
General Biology			4
Biology Elective	4		4
*Anatomy & Physiology	8	8	8
General Psychology		3	3
#Abnormal Psychology	3	3	3
#Developmental/Lifespan Psychology	3		3
Cultural/ Ethnic Diversity	3		3
Sociology	3	3	3
Math			3
~ Statistics	3	3	
English Composition	3		3
English Elective	3		
Written and Oral Communication			3
Cumulative QPA	3.0	3.0	2.8
Volunteer Hours	50/2 sites	40	
Criminal Background check	Yes	Yes	Yes
GRE	Not required	Not Required	Required
Length of Program	2 years	2 years	27 -30 months

Pre-Pharmacy Tract

The Pre-Pharmacy program at Cabrini prepares students to enter a professional pharmacy program leading to a Bachelors degree. Students generally complete the first two years at Cabrini and complete their final two years at a transfer institution. Students who need remedial coursework (i.e. MAT 098/099) or who fail to earn a "C" or higher in course prerequisites will not be able to complete the outlined curriculum in two years. It is the student's responsibility to identify specific pharmacy programs, speak with that school's admission counselor and determine their specific admissions requirements. As each transfer institution has its own unique admissions criteria, the suggested two-year curriculum at Cabrini may need to be modified. Please contact Dr. Joseph Smith to discuss this option in detail.

Pre-Pharmacy is not a degree-granting major and does not provide any clinical coursework in its curriculum.

Regardless of their transfer requirements students must complete COL 101, and should complete ECG 100 and ECG 200 at Cabrini College.

Students must meet the criteria to be admitted to the major/program to take science coursework past BIO 102, CHE 112, and PHY 102.

Sample Curriculum

First Year

Fall		Spring	
BIO 101	4 credits	BIO 102	4 credits
*CHE 111	4 credits	CHE 112	4 credits
MAT 130	4 credits	IST 125	4 credits
ECG 100	3 credits	PSY 101	3 credits
COL 101	1 credit	MAT 118	3 credits
Total: 16 credits		Total: 18 credits	

Second Year

Fall		Spring	
BIO 230	4 credits	BIO 231	4 credits
PHY101	4 credits	PHY 102	4 credits
CHE 211	4 credits	CHE 212	4 credits
SOC 215	3 credits	Elective	3 credits
ECG 200	3 credits	Elective	3 credits
Total: 18 credits		Total: 18 credits	

Other:

- *CHE 100 may be required based on SAT scores and high school background.
- ^Most institutions will not accept ECG 100 and ECG 200.
- Most institutions will only accept grades of "C" or higher and some require a 3.2 QPA overall.

Sample Pharmacy Prerequisites

	<u>Rutgers (Pharm.D.)</u>	<u>U of Sci (Pharm.D.)</u>	<u>Temple (Pharm.D.)</u>
General Biology	8	8	8 (majors or non-majors)
Microbiology		4	
Human Physiology	3 (can sub 8 cr A&P)	8 cr A&P or Human Anatomy	
General Chemistry	8	8	8
Organic Chemistry	8	8	8
Physics	7-8	4	8 Calculus-based only (Not available at Cabrini)
Math	4 Calc I Must be taken at Rutgers	7-8 (Alg/Trig or Calc I and II)	8 Calc I and II
Statistics	4 (Psychology-based)		
Computer Science (IST)		3	
English Composition	6	3	3
Intro Microeconomics	3		
Intro Macroeconomics			3
Physical Education		1-3	
Heritage & CORE		6 CORE/Soc Sci 6 Int. Heritage (Refer to catalog)	6
Intro Psychology or Sociology	3	3	
Electives	15 (Hum. Soc Sci, Psy)		18 (See Temple's CORE Requirements)
Credits required for admission	65-67 PCAT recommended	68 minimum PCAT required	69+ Core PCAT required
Cumulative QPA	3.2	3.5	3.2

Pre-Physical Therapy Tract

The Pre-Physical Therapy program at Cabrini College prepares students to enter a professional physical therapy program leading to a Doctorate degree. Most physical therapy programs do not accept non-degreed students, therefore it is usually necessary to complete a B.S. degree at Cabrini and take all prerequisite courses before entering a physical therapy program at the graduate level. Most students elect to pursue a degree in Biology or Exercise Science & Health Promotion. Cabrini College does not offer a physical therapy major and does not offer any clinical coursework. Cabrini College also has a 3+3 articulation agreement with Widener University. This articulation agreement states that after completion of the first professional year at Widener, a B.S. in Biology is awarded from Cabrini and after completion of the final two professional years, a DPT is awarded from Widener. Because of the demands of the 3+3 program it is recommended only for students with an outstanding academic record in high school and a strong background in science. Currently students must have a high school GPA of 3.5 or higher and an SAT (verbal/math) of 1150 or higher / ACT of 27 or higher to be considered for this accelerated program. Specific requirements for this and other local physical therapy programs are presented on the following pages, however schools have the right to change their requirements therefore it is solely the student's responsibility to identify specific programs and speak with their admissions counselors to verify requirements. For more information about physical therapy programs, see the American Physical Therapy Association website at www.apta.org. Please contact Dr. Melinda Harrison to discuss options in detail.

Students must meet the criteria to be admitted to the major/program to take science coursework past BIO 102, CHE 112, and PHY 102.

Students may consider taking prerequisite courses at Cabrini and transferring to another institution. Generally, two years are needed to complete requirements to enter most PT programs. Students who need remedial coursework (i.e. MAT 098/099) or who fail to earn a "C" or higher in course prerequisites will not be able to complete the outlined curriculum in two years. Regardless of their transfer requirements students must complete COL 101, and should complete ECG 100 and ECG 200 at Cabrini College.

Sample Curriculum

This sample is based on requirements of the B.S. Biology with a concentration in Biological Sciences. Other majors can also be completed and designed to meet the entry requirements of most physical therapy programs.

Cabrini College General Education and Major Requirements:

◆ BIO 101/102 or HBIO 101/102– Biological Science I and II	8 credits
◆ BIO 206 – Cell and Molecular Biology	4 credits
◆ BIO 208/208L or BIO 348 - Ecology and Ecology Lab	4 credits
◆ BIO 263 – Genetics	4 credits
◆ BIO 231 - Human Anatomy + Physiology II or BIO 301 – General Physiology	4 credits
◆ BIO 315 – Introduction to Scientific Presentations	1 credit
◆ *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	<u>8 credits</u>

* Most PT graduate programs require 2 semesters of Anatomy & Physiology as a prerequisite so one elective should be BIO 230 - Anatomy Physiology I.

For 3+3 students: Courses taken at Widener University:

BIO 444 – Senior Seminar	credit for courses PT 750/751 Critical Inquiry I/II
BIO 488 – Internship	credit for course PT 730 Intervention I

Other Cabrini College Requirements:

The Cabrini College – Pre-PT 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-Physical Therapy advisor.
- Earned a B- or higher in all required courses plus a 3.2 basic Science QPA OR earned no less than a C- in all required courses plus a 3.4 basic science QPA
- Have no record of academic dishonesty at the College

Sample Physical Therapy Prerequisites

	<u>Jefferson (DPT)</u>	<u>Drexel (DPT)</u>	<u>Widener (DPT)</u>
General Biology (BIO 101-102)	8	8	
Anatomy & Physiology (BIO 230-231)	8	8	8
Nutrition (BIO 250)	3		
Upper level Biology (300-level or higher)		3-4	
General Chemistry (CHE 111-112)	8	8	8
Physics (PHY 101-102)	8	8	8
English	6		3 (composition)
Math	3 (Alg & Trig or Calc)		
Statistics	3	3	3
Introductory Psychology (PSY 101)	3	3	3
Advanced Psychology	6 (Dev, Abnl or Child)	3 (Dev)	3
Introductory Sociology	3 (or Anthro)		3
Ethics or Philosophy	3		
Humanities			6
Credits completed for admissions:	Degree	Degree	Degree or 3+3
PT Experience	50 hrs, two settings	Required	Required
Health Care Experience	Yes		
GRE	Not required	1500 minimum in 3 sections	500+ in verbal, 500+ in math
Length of Program	3 years	33 months	3 years
GPA minimum	3.0	3.0	3.0

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.)

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.

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.

Application for Honors in the Science Department

Name _____

College ID Number _____

Major _____ Concentration _____

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) 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 fulltime 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 concentrations 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.

Minor Requirements

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
<u>*3 additional BIO courses (200+-level)</u>	<u>9 credits</u>
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
<u>*3 additional CHE courses (200+-level)</u>	<u>9 credits</u>
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
*348 – Ecology	4 credits
*Select from the following:	6 credits
<u>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</u>	
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.

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.

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 SET. Dr. Smith is the advisor for this club.

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. Boyd 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 "drop-in" at Grace Hall, Room 160, 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 and 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

FOR STUDENT'S RECORDS

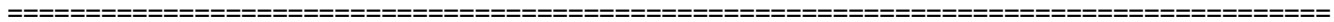
Receipt of Science Department Student Handbook

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 _____



FOR DEPARTMENTAL RECORDS

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Date _____