

B.A. & B.S. BIOLOGICAL SCIENCES



ACADEMIC LEARNING COMPACT

The principle mission of the Department of Biological Sciences is to train students for careers in biological sciences or to pursue advanced training in graduate and professional schools. Through both education and research, our department seeks an increased appreciation and respect for our environment and awareness of the impact of our decisions on local, regional and global issues concerning the economy, personal health and welfare, and the environment.

CONTENT KNOWLEDGE (Declarative Knowledge): Students will demonstrate an understanding of cell structure, cell physiology and the molecular processes of cells. Students will be able to describe the features which distinguish the major groups of organisms and the developmental and physiological mechanisms which are fundamental to all living organisms. Students will demonstrate an understanding of the principles of organismal genetics, evolution and ecology.

Students majoring in the biological sciences are required to successfully complete the following core courses:

BSC 1010: Biological Principles

BSC 1011: Biodiversity

MCB 3020: General Microbiology

PCB 4023: Molecular and Cell Biology

PCB 4043: Principles of Ecology

PCB 3063: Genetics

Students' knowledge of the material will be assessed by examinations, typically using multiple-choice and short-answer questions. In upper division courses, examinations consist of advanced objective questions and high level problem solving.

CONTENT KNOWLEDGE (Technical Skills): Students will demonstrate proper laboratory practice, use of equipment, and ability to use basic and advanced techniques in several areas of biology.

Students majoring in the biological sciences are required to successfully complete the following core laboratory courses:

BSC 1010L: Biological Principles Laboratory

BSC 1011L: Biodiversity Laboratory

MCB 3020L: General Microbiology Laboratory

In BSC 1010L, students are tested primarily over conceptual material via short answer and essay questions. In BSC 1011L, students are tested with practical examinations on their technical skills. In MCB 3020L, students are tested with practical examinations over a variety of laboratory skills including microscope technique, sterile technique, and tissue culture.

COMMUNICATION (Written Communication, Oral Communication): Students will demonstrate the ability to speak and write effectively on biological topics.

Students in BSC 1010L and BSC 1011L are assigned to discussion groups of eight to ten students where they discuss course concepts and are evaluated for group participation. In addition, students are tested for written communication skills via essay and short answer examinations. In MCB 3020L, students also demonstrate their written communication skills by completing laboratory reports, homework assignments, and reviews of technical papers.

CRITICAL THINKING (Analytical Skills): Students will use critical thinking to evaluate information and data related to behavioral and psychological processes by applying basic principles of scientific methodology including (1) the nature of scientific explanations, (2) threats to the validity and reliability of observations, (3) the limitations of measurement scales, (4) the use of experimental and quasi-experimental designs to test hypotheses and (5) the proper interpretation of correlational and experimental data.

In PSY 3213 (Research Methods in Psychology), students will complete examinations and write a research paper that will assess students' understanding and application of scientific methodology.

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COMPLETE DEGREE REQUIREMENTS APPEAR IN FAU'S UNIVERSITY CATALOG



CONTENT KNOWLEDGE (Declarative knowledge): Graduates in Chemistry will understand basic concepts, theories, and experimental findings in four core areas of chemistry (analytical, biochemical, inorganic and physical).

CRITICAL THINKING (Analytical Skills): Graduates in Chemistry will use critical thinking to evaluate information and data related to chemical processes by applying basic principles of scientific methodology including (1) the nature of scientific explanations, (2) threats to the validity and reliability of observations, (3) the limitations of measurement scales, (4) the use of experimental and quasi-experimental designs to test hypotheses and (5) the proper interpretation of correlational and experimental data.

Students will complete the following courses, which adhere to guidelines of the American Chemical Society's Committee on Professional Training:
CHM 3120 & CHLM 3120: Quantitative Analysis Lecture and Lab
BCH 3033 & BCHL 3103: Biochemistry 1 and Biochemistry Lab
CHM 3609 & CHML 3609: Inorganic Chemistry Lecture and Lab
CHM 3410 & CHML 3410: Physical Chemistry 1 Lecture and Lab
CHM 3400: Introduction to Physical Chemistry

Examinations, research papers, and laboratory reports in each of these courses will be used to assess students' content knowledge and understanding of scientific methodology. Students with a grade of C- or higher in each of the core courses will be deemed to have met this outcome. Students who earn grades below C- will be required to repeat the course.

CONTENT KNOWLEDGE (Technical Skills): Graduates in Chemistry will be able to perform laboratory techniques sufficient to conduct basic and advanced experiments in Chemistry and Biochemistry.

Students will complete laboratory courses (CHML 3120, BCHL 3103, CHML 3609, and CHML 3410) in which they will conduct laboratory experiments. Students will be assessed on their technical expertise, in accord with the guidelines of the American Chemical Society's Committee on Professional Training.

COMMUNICATION (Written communication): Graduates in Chemistry will be able to produce writing that is grammatically correct, well-organized, and properly formatted and in accord with the American Chemical Society's Style Guide.

COMMUNICATION (Graphic Communication): Graduates in Chemistry will be able to produce and interpret charts, graphs and tables that effectively and accurately display chemical data, relationships and principles.

Students will complete laboratory courses (CHML 3120, BCHL 3103, CHML 3609, and CHML 3410) in which they will complete laboratory reports that require written and graphical components as appropriate to the assignment. These reports will be assessed for knowledge and application of the guidelines of the American Chemical Society's Style Guide and for skills in conveying knowledge of chemistry in written and graphical forms. In addition, students will be required to take and pass one course designated in the university's Writing Across the Curriculum program to demonstrate general writing skills. Students must earn a grade of C- or higher in that course, as well as in all of the above courses that are required in their degree program. Students who earn grades below C- will be required to repeat that course.

Approved 3-20-2006

COMPLETE DEGREE REQUIREMENTS APPEAR IN FAU'S UNIVERSITY CATALOG

B.A. & B.S. GEOGRAPHY



E. SCHMIDT LEGAL SCIENCE
DEPARTMENT OF GEOSCIENCES

ACADEMIC LEARNING COMPACT

CONTENT KNOWLEDGE (Declarative Knowledge): Graduates in Geography will understand basic concepts and theories in the spatial analysis of human-environmental systems as emphasized in the department such as: physical environment of South Florida, cultural landscape, water resources, coastal hazards, environmental management, urban sprawl and development, and sustainability.

Students will complete a senior capstone course, GEO 4337 (Human/Environmental Interactions in South Florida). Exams and assignments in all sections of the course will be used to assess students' knowledge.

CRITICAL THINKING (Analytical Skills, Practical Skills): Graduates in Geography will use critical thinking to evaluate information, data and problems related to geography by applying basic principles of scientific methodology including data collection and/or field observations that are analyzed using appropriate quantitative or qualitative techniques that illustrate the understanding, description and modeling of a geographic problem.

CONTENT KNOWLEDGE (Technical skills) and COMMUNICATION (Written Communication; Oral Communication, Other Forms of Communication): Graduates in Geography will be able to produce writing that is grammatically correct and well-organized and to deliver clear and well-organized oral presentations. Both written and oral communications should illustrate clear communication skills utilizing graphic tools in geographic information systems, remote sensing and other techniques.

In GEO 4337, students will complete a major research project that illustrates their understanding of the scientific method as applied to geographic problems. They will produce a substantial written report of this research project and orally present the project in the class and/or the department colloquium series. The project should utilize graphics such as computer cartography, geographic information systems, and/or remote sensing, where appropriate, to aid in the communication/illustration of the research.

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REFER TO FAU'S UNIVERSITY CATALOG FOR ADDITIONAL DEGREE REQUIREMENTS

B.A. & B.S. GEOLOGY



ACADEMIC LEARNING COMPACT

All majors in geology are required to complete GLY 4750 (Field Methods) which includes classroom lectures on Appalachian Geology, a nine day trip to the Southern Appalachians, and two one-day field trips in the local area. This class combines classroom knowledge with field-based observations and published geological data and interpretations, and requires the student to demonstrate proficiency in integrating these sources into a final paper where they will discuss multiple hypotheses interpreting the data they have gathered.

CONTENT KNOWLEDGE (Declarative Knowledge, Technical Skills): Majors in Geology will demonstrate mastery of broad knowledge of Appalachian geology, details of specific sites within the region, and basic field techniques appropriate to the region.

Students will demonstrate mastery of basic regional geology and basic field techniques in GLY 4750 via a written examination. The examination will cover the broad regional geology of the area to be visited on the field trip, including the characteristics of the geomorphic regions, knowledge of the orogenic history of the region, and site-specific knowledge of localities visited on the Junior Field Camp.

COMMUNICATION (Written Communication, Oral Communication, and Illustrative Communication): Majors in Geology will demonstrate the following communication skills:

- Ability to produce writing that is grammatically correct, well-organized, and clear.
- Ability to effectively use illustrations to communicate their observations, hypotheses, and interpretations of geologic data.
- Ability to orally communicate their observations and exchange ideas in a clear and succinct manner.

Students will demonstrate the ability to properly present geologic observations in GLY 4750 by recording both written and illustrative notes in field notebooks. Instructors will

evaluate field notebooks based on the completeness and accuracy of the observations as well as on the clarity of writing. Students will also be required to orally summarize, at the field sites, their observations and interpretations of the geologic setting and geologic history of the field sites. Instructors will evaluate oral presentations based on the ability of the student to clearly explain his/her observations, to exchange ideas, and to explain their hypotheses and interpretations.

In addition, students will be required to complete courses designated in the university's Writing Across the Curriculum program to demonstrate general writing skills.

CONTENT KNOWLEDGE (Research skills) and CRITICAL THINKING (Analytical and Practical skills): Majors in Geology will evaluate data gathered in the field and apply scientific methodology and knowledge of basic geologic concepts and processes to the interpretation of the data. They will demonstrate their ability to interpret the geologic record from available evidence and to understand geologic history and potential for mineral exploration.

In GLY 4750, students will be required to present a written report in which they will summarize their interpretations of the geologic history of a given site. The report will be evaluated based on the ability of the student to perform data analysis, formulate a working hypothesis and clearly support it with the field data. In addition, students will be evaluated based on their abilities to apply qualitative and quantitative techniques to support their hypotheses and interpretations.

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COMPLETE DEGREE REQUIREMENTS APPEAR IN FAU'S UNIVERSITY CATALOG



ACADEMIC LEARNING COMPACT

B.A. & B.S. Mathematics

CONTENT KNOWLEDGE (Declarative Knowledge, Technical Skills): Graduates in mathematics will understand basic concepts in two core areas of mathematics: algebra and analysis. Graduates in mathematics will apply these concepts to concrete examples arising in both of these areas.

Both B.A. and B.S. mathematics majors are required to complete two capstone courses: Modern Algebra (MAS 4301) and Modern Analysis (MAA 4200). In each of these courses, students submit solutions to homework problems and take examinations designed to assess each student's knowledge of basic concepts and ability to use these concepts in particular applications.

COMMUNICATION (Written, Oral): Graduates in mathematics will produce writing that is well organized and grammatically correct, and they will express mathematical ideas clearly and concisely.

CRITICAL THINKING (Analytical skills): Graduates in mathematics will analyze and solve a variety of mathematical problems.

Both B.A. and B.S. mathematics majors are required to complete Mathematical Problem Solving (MAT 4937). In this course, students solve a wide variety of mathematical problems, write up and submit detailed solutions to these problems, and present solutions orally in class.

B.A. & B.S. PHYSICS



SCHMIDT COLLEGE OF SCIENCES
DEPARTMENT OF PHYSICS

ACADEMIC LEARNING COMPACT

CONTENT KNOWLEDGE (Declarative Knowledge): Graduates in Physics will understand basic concepts, theories, and experimental findings in four core areas of physics: particle and wave mechanics, electricity and magnetism, thermodynamics and modern physics.

CONTENT KNOWLEDGE (Research Skills) and CRITICAL THINKING (Analytical Skills, Practical Skills): Graduates in Physics will demonstrate an understanding of scientific methodology and will apply their knowledge to laboratory assignments that demonstrate each student's understanding of (1) the nature of scientific explanations, (2) threats to the validity and reliability of observations, (3) the limitations of measurement scales, (4) the use of experimental and quasi-experimental designs to test hypotheses and (5) the proper interpretation of experimental data.

In each of the following courses, exams, term papers and laboratory reports will be used to assess each student's knowledge of the subfield of physics.

PHY 2048 and PHY 2048L: General Physics I and Lab PHY 3101: Modern Physics

PHY 2049 and PHY 2049L: General Physics II and Lab PHY 3221: Intermediate Mechanics

PHY 3323: Electromagnetism I

In these courses, students will also complete homework problems, tests and laboratory assignments that require abstract critical thinking and sound scientific methodology in applying the fundamental laws of physics to diverse and applied situations.

COMMUNICATION (Written Communication): Graduates in Physics will be able to produce writing that is grammatically correct, well-organized, and properly formatted and in accord with the guidelines and styles described in the Department's Physics Laboratory Manuals.

COMMUNICATION (Graphic Communication): Graduates in Physics will be able to produce and interpret charts, graphs and tables that effectively and accurately display data, relationships and principles.

Students will be required to complete laboratory courses (PHY 2048L, PHY 2049L and PHY 4811L) in which they will complete laboratory reports that require written and graphical components as appropriate to the assignment. In each of the following laboratory courses, students will write laboratory reports in accordance with the guidelines and styles described in the Department's Physics Laboratory Manuals:

PHY 2048L: General Physics Lab I PHY 2049L: General Physics Lab II

PHY 4811L: Experimental Modern Physics (required for BS in Physics majors only)

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COMPLETE DEGREE REQUIREMENTS APPEAR IN FAU'S UNIVERSITY CATALOG



CONTENT KNOWLEDGE (Declarative Knowledge): Graduates in Psychology will demonstrate their knowledge of basic concepts, theories, and experimental findings in four core areas of psychology (cognitive, developmental, social, and psychobiology).

Four of the courses students must successfully complete are designed to cover each of the core subfields of psychology listed above:

DEP 3054: Psychology of Human Development EXP 3505: Cognition
PSB 3002: Biological Bases of Behavior SOP 3004: Social Psychology

Exams and other coursework assigned by the faculty will be designed to assess student achievement of these learning outcomes.

CONTENT KNOWLEDGE (Technical Skills): Graduates in Psychology will demonstrate their ability to (1) enter data into a database, and (2) select, plan and conduct appropriate statistical analyses on sets of data using computer software.

Each student in the program must complete STA 3163L (Intermediate Statistics Laboratory). Exams and other coursework assigned by the faculty will be designed to assess student achievement of these learning outcomes.

COMMUNICATION (Written Communication): Graduates in Psychology will be able to produce writing that is grammatically correct, well-organized, and properly formatted according to the American Psychological Association's Publication Manual.

Students are required to successfully complete, with grades of "C" or higher, four courses in writing (for a total of 12 credit hours) in accordance with the "Gordon Rule" for writing. This may be achieved through the university's Writing Across the

Curriculum Program, or by taking more standard Gordon rule courses (for writing). Successfully completing this graduation requirement will provide a demonstration of general writing skills. In addition, knowledge of APA style will be assessed in the recitation component of PSY 3213 (Research Methods in Psychology), a course required of all psychology majors.

COMMUNICATION (Written Communication; Graphical Communication): Graduates in Psychology will demonstrate their ability to properly communicate the meaning of the results of statistical analyses and the scientific conclusions that may be drawn from them, in written, tabular, and graphical form following APA style.

As a part of the semester assignments completed in STA 3163L (Intermediate Statistics Laboratory), students will create tables and graphs to communicate the scientific meaning of the analysis results and visually present these.

CRITICAL THINKING (Analytical Skills): Graduates in Psychology will use critical thinking to evaluate information and data related to psychological processes by applying basic principles of scientific methodology including (1) the nature of scientific explanations, (2) threats to the validity and reliability of observations, (3) the limitations of measurement scales, (4) the use of experimental and quasi-experimental designs to test hypotheses and (5) the proper interpretation of correlational and experimental data.

Exams and other coursework assigned by the faculty who teach PSY 3213 (Research Methods in Psychology) will assess student achievement of these learning outcomes.

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COMPLETE DEGREE REQUIREMENTS APPEAR IN FAU'S UNIVERSITY CATALOG



CONTENT KNOWLEDGE (Declarative Knowledge): Graduates in Psychobiology will demonstrate their knowledge of basic concepts, theories, and experimental findings in three core areas of psychobiology (biological bases of behavior, comparative animal behavior, and comparative animal physiology).

Three of the courses students must successfully complete are designed to cover each of the core subfields of psychobiology listed above:

CBH 4024: Comparative Animal Behavior

PCB 4723: Comparative Animal Physiology

PSB 3002: Biological Bases of Behavior

Exams and other coursework assigned by the faculty will be designed to assess student achievement of these learning outcomes.

CONTENT KNOWLEDGE (Technical Skills): Graduates in Psychology will demonstrate their ability to (1) enter data into a database, and (2) select, plan and conduct appropriate statistical analyses on sets of data using computer software.

Each student in the program must complete STA 3163L (Intermediate Statistics Laboratory). Exams and other coursework assigned by the faculty will be designed to assess student achievement of these learning outcomes.

COMMUNICATION (Written Communication): Graduates in Psychology will be able to produce writing that is grammatically correct, well-organized, and properly formatted according to the American Psychological Association's Publication Manual.

Students are required to successfully complete, with grades of "C" or higher, four courses in writing (for a total of 12 credit hours) in accordance with the "Gordon Rule" for writing. This may be achieved through the university's Writing Across the Curriculum Program, or by taking more standard Gordon rule courses (for writing).

Successfully completing this graduation requirement will provide a demonstration of general writing skills. In addition, knowledge of APA style will be assessed in the recitation component of PSY 3213 (Research Methods in Psychology), a course required of all psychology majors.

COMMUNICATION (Written Communication; Graphical Communication): Graduates in Psychology will demonstrate their ability to properly communicate the meaning of the results of statistical analyses and the scientific conclusions that may be drawn from them, in written, tabular, and graphical form following APA style.

As a part of the semester assignments completed in STA 3163L (Intermediate Statistics Laboratory), students will create tables and graphs to communicate the scientific meaning of the analysis results and visually present these.

CRITICAL THINKING (Analytical Skills): Graduates in Psychology will use critical thinking to evaluate information and data related to psychological processes by applying basic principles of scientific methodology including (1) the nature of scientific explanations, (2) threats to the validity and reliability of observations, (3) the limitations of measurement scales, (4) the use of experimental and quasi-experimental designs to test hypotheses and (5) the proper interpretation of correlational and experimental data.

Exams and other coursework assigned by the faculty who teach PSY 3213 (Research Methods in Psychology) will assess student achievement of these learning outcomes.

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COMPLETE DEGREE REQUIREMENTS APPEAR IN FAU'S UNIVERSITY CATALOG