

# ALLIED AND PROFESSIONAL HEALTH SCIENCES POST BACCALAUREATE CERTIFICATE

## Introduction

Please click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/integrative-biology/>) to see Integrative Biology Department information.

The health field offers job opportunities and rewarding careers. It is one of the fastest growing industries in the US and the Bureau of Labor Statistics has projected increasing demand and labor shortages for at least the next ten years. The CU Denver Post-Baccalaureate Allied and Professional Health Sciences Certificate was developed as an opportunity for the many students who already have a bachelor's degree and want to shift their career into this large and fast growing industry to improve employment opportunities and potential earnings.

In order to improve their position among many highly qualified applicants to health professions programs and for health science related jobs, we anticipate that many students will need to continue their higher education. The College of Liberal Arts and Sciences has developed a certificate that provides a broad foundation in STEM (Biology, Chemistry and Physics) and advanced health-oriented coursework that is essential for both graduate and professional programs and the needs of the health industry.

Students who have already completed an undergraduate degree from an accredited College/University, but need additional undergraduate pre-requisite courses to apply to health professions programs (including medicine, pharmacy, dentistry, nursing, lab technicians, health research jobs and more), can benefit from the CU Denver Post Baccalaureate Allied and Professional Health Sciences Certificate. CU Denver is well-known for preparing students for applications to health careers and acceptance to health professions programs. This certificate program offers high quality, rigorous preparatory classes and exceptional health careers advising including assistance with letters of evaluation, seminars on application processes, and assistance finding clinical, research, and community service experiences to enhance applications.

These degree requirements are subject to periodic revision by the academic department, and the College reserves the right to make exceptions and substitutions as judged necessary in individual cases. Therefore, the College strongly urges students to consult regularly with their program advisor to confirm the best plans of study before finalizing them. Exceptions and substitutions must be approved by the Director of the certificate.

## Program Delivery

- This is an on-campus program.

## Declaring This Certificate

When applying to CU Denver, students should select the Undergraduate Degree-Seeking option. After indicating that the student has or will have completed a bachelor's degree, the applicant should be directed to a

screen that allows selection into the Allied and Professional Health Sciences Certificate. After admission, students should meet with the Program Director of the Certificate (NC 3002) to work collaboratively to develop a course plan that best meets their academic and career goals.

## Contact Details

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## General Requirements

Students must satisfy all requirements as outlined below and by the department offering the certificate.

- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/academic-policies-procedures/>) for information about Academic Policies

## Program Requirements

1. Students must complete a total of 32 credit hours, with a minimum of 15 credit hours at CU Denver from the time students start the program, from approved CU Denver courses.
2. Students must complete a minimum of 12 upper-division (3000-level and above) credit hours from approved CU Denver courses.
3. Students must earn a minimum grade of C (2.0) in all courses that apply to the certificate and must achieve a minimum cumulative certificate GPA of 2.0. All graded attempts in required and elective courses are calculated in the certificate GPA. Courses taken using P +/P/F or S/U grading cannot apply to certificate requirements.
4. The 15 credit hours of approved courses must be completed at CU Denver, from the time a student starts the program. 12 of these credit hours must be upper division (3000-4000 level courses). Other coursework (up to 17 credit hours) used as prerequisites or other courses applicable to the certificate program, may be taken at CU Denver or transferred from another university with evaluation and approval.

## Program Restrictions, Allowances and Recommendations

1. Students may use prior/ transfer coursework to fulfill requirements and prerequisites, as long as departmental faculty evaluate the coursework and decide courses are directly equivalent to the courses at CU Denver.
2. The certificate must be completed within a five-year period.
3. Individual courses used to earn the certificate may carry other prerequisites that must be met before enrolling.
4. All of the courses or equivalent credit through transfer coursework must be taken within the last 10 years.
5. A prerequisite for any course must be transferred or completed at CU Denver before enrolling in that course.
6. Graduate level courses can substitute for their undergraduate counterparts with approval by Program Director.

7. Specific requirements may exist pertaining to financial aid.
8. Students must already have earned a Bachelor's degree to be admitted to this certificate.
9. Students currently enrolled in Bachelor's, Master's or Doctoral degree programs are not eligible for this certificate.
10. Students who complete this certificate may not apply the courses used to earn the certificate toward a second degree, if they choose to return and seek a second degree at CU Denver.

Code	Title	Hours
<i>Complete a minimum of 32 credit hours from the following courses:</i> <sup>1</sup>		32
ANTH 3000	Globalization, Migration and Transnationalism	
ANTH 3150	Special Topics in Medical Anthropology	
ANTH 3202	Anthropology of Health Care Policy	
ANTH 3666	Anthropology of Death	
ANTH 4010/5014	Medical Anthropology: Global Health	
ANTH 4080/5080	Global Health Practice	
ANTH 4270	Anthropology of the Body	
ANTH 4290/5290	Anthropology and Public Health	
ANTH 4300/5300	Migrant Health	
ANTH 4600/5600	Medical Anthropology	
ANTH 4800/5800	Special Topics in Medical Anthropology	
BIOE 3010	Bioinstrumentation	
BIOE 3020	Introduction to Biomechanical Analysis	
BIOE 3030	Introduction to Biomaterials	
BIOE 3040	Physiology for Bioengineering	
BIOE 3050	Cell & Molecular Bioengineering	
BIOE 3051	Cell & Molecular Bioengineering Lab	
BIOE 3060	Biostatistics, Measurement and Analysis	
BIOE 3070	Bioengineering Lab I	
BIOE 3071	Bioengineering Lab II	
BIOE 3090	Introduction to BioDesign	
BIOE 3939	Undergraduate Internship	
BIOE 4035	Undergraduate BioDesign II	
BIOE 4045	BioDesign III	
BIOE 4057	Rehabilitation and Assistive Technology	
BIOE 4053	Optics and Microscopy in Biomedical Research	
BIOE 4058	Intro to Design, Disability, and Aging	
BIOE 4063	3D Modeling for Bioengineers	
BIOE 4064	Advanced MatLab For Bioengineers And Life Scientists	
BIOE 4068	Introduction to Medical Imaging	
BIOE 4069	Advanced Biomechanics for Undergraduates	
BIOE 4073	Neural Interfaces and Bionic Limbs	
BIOE 4083	Polymers in Biomedical Applications	
BIOE 4085	Tissue Engineering	
BIOE 4420	Special Topics in Bioengineering	

BIOE 4840	Independent Study in Bioengineering
BIOE 4929	Undergraduate Research Project
BIOL 2010	Organisms to Ecosystems (Gen Bio) or BIOL 2030Honors Organisms to Ecosystems (Gen Bio)
BIOL 2011	Organisms to Ecosystems Lab (Gen Bio) or BIOL 2031Honors Organisms to Ecosystems Lab (Gen Bio)
BIOL 2020	Molecules to Cells (Gen Bio) or BIOL 2040Honors Molecules to Cells (Gen Bio)
BIOL 2021	Molecules to Cells Lab (Gen Bio) or BIOL 2041Honors Molecules to Cells Lab (Gen Bio)
BIOL 3074	Human Reproductive Biology
BIOL 3104	Behavioral Genetics
BIOL 3124	Introduction to Molecular Biology
BIOL 3134	Advanced Topics
BIOL 3225	Human Physiology
BIOL 3244	Human Anatomy
BIOL 3411	Principles of Ecology
BIOL 3445	Introduction to Evolution
BIOL 3521	Vertebrate Biology
BIOL 3525	Parasitology
BIOL 3611	General Cell Biology
BIOL 3612	Cell Biology Laboratory
BIOL 3621	Introduction to Immunology
BIOL 3650 & BIOL 3651	General Microbiology and General Microbiology Lab
BIOL 4674	Endocrinology
BIOL 3763	Biostatistics
BIOL 3804	Developmental Biology
BIOL 3832	General Genetics
BIOL 3939	Internship
BIOL 4024/5024	Introduction to Biotechnology
BIOL 4050	Advanced Biology Topics
BIOL 4053	Disease Ecology
BIOL 4055	Virology
BIOL 4064	Cell Biology of Disease
BIOL 4125	Molecular Biology Laboratory
BIOL 4126	Molecular Genetics
BIOL 4128	Topics in Molecular Biology
BIOL 4134	Human Genetics
BIOL 4144	Medical Microbiology
BIOL 4165	Neurobiology
BIOL 4225	Genomics and Bioinformatics
BIOL 4415	Applied Microbial Ecology
BIOL 4425	Biogeography
BIOL 4460	Environmental Toxicology
BIOL 4464	Exercise Physiology
BIOL 4475	Mechanisms of Human Pathology
BIOL 4494	Population and Evolutionary Genetics
BIOL 4550	Cell Signaling
BIOL 4622	Topics in Immunology
BIOL 4634	Biology of Cancer

BIOL 4644	Advanced Human Anatomy Laboratory	GEOG 3401	Geography of Food and Agriculture
BIOL 4815	Structural Biology of Neurodegenerative Diseases	GEOG 3501	Geography of Health
BIOL 4825	Biochemistry of Metabolic Disease	GEOG 4080	Introduction to GIS
BIOL 4835	Biochemistry of Gene Regulation and Cancer	GEOG 4085	GIS Applications for the Urban Environment
BIOL 4840	Independent Study	GEOG 4235	GIS Applications in the Health Sciences
BIOL 4880	Directed Research	GEOG 4710	Disasters, Climate Change, and Health
BIOL 4990	Undergraduate Research Seminar	HEHM 3100	Introduction to Health Humanities
CHEM 1000	Foundations for General Chemistry	HEHM 3570	Death & Dying: Social & Medical Perspectives
CHEM 1474	Core Chemistry: Chemistry for Everyday	HIST 3297	Social History of Asian Americans
CHEM 2031	General Chemistry I	HIST 3343	Women & Gender in US History
or CHEM 2031H	Honors General Chemistry I	HIST 3345	Immigration and Ethnicity in American History
CHEM 2038	General Chemistry Laboratory I	HIST 3347	African-American History, 1619-Present
or CHEM 2038M	Majors General Chemistry I Laboratory	HIST 3365	Aztlan in the United States: Chicano History from 1821
or CHEM 2038H	Honors General Chemistry I Laboratory	HIST 3396	History of the American Indian
CHEM 2061	General Chemistry II	HIST 4076	History of Modern Science
or CHEM 2061H	Honors General Chemistry II Lecture	HIST 4345	Gender, Science, and Medicine: 1600 to the Present
CHEM 2068	General Chemistry Laboratory II	HIST 4348	Mind and Malady: A History of Mental Illness
or CHEM 2068M	Majors General Chemistry II Laboratory	HIST 4503	Topics in History of Science
or CHEM 2068H	Honors General Chemistry II Laboratory	IWKS 4500	Bio-Design and Innovation
CHEM 2300	Nutritional Chemistry	IWKS 4520	Design for Healthful Human Longevity
CHEM 3011	Inorganic Chemistry	LATN 3000	Medical Terminology
CHEM 3018	Inorganic Chemistry Laboratory	MATH 1110	College Algebra
CHEM 3111	Analytical Chemistry	or MATH 1110S	Stretch College Algebra-Part 1
CHEM 3118	Analytical Chemistry Laboratory	& MATH 1110S	and Stretch College Algebra-Part 2
CHEM 3411	Organic Chemistry I	MATH 1120	College Trigonometry
or CHEM 3411M	Majors Organic Chemistry I	MATH 1130	Precalculus Mathematics
CHEM 3418	Organic Chemistry Lab I	MATH 1401	Calculus I
or CHEM 3418M	Majors Organic Chemistry Laboratory I	MATH 2411	Calculus II
CHEM 3421	Organic Chemistry II	MATH 2421	Calculus III
or CHEM 3421M	Majors Organic Chemistry II	MATH 2830	Introductory Statistics
CHEM 3428	Organic Chemistry Lab II	PBHL 1001	Race, Gender, Class, & Health
or CHEM 3428M	Majors Organic Chemistry Laboratory II	PBHL 2001	Introduction to Public Health
CHEM 3810	Biochemistry	PBHL 3001	Introduction to Epidemiology
CHEM 4810	General Biochemistry I	PBHL 3002	Ethnicity, Health and Social Justice
CHEM 4815	Structural Biology of Neurodegenerative Diseases	PBHL 3010	Human Sexuality and Public Health
CHEM 4820	General Biochemistry II	PBHL 3020	Introduction to Environmental Health
CHEM 4825	Biochemistry of Metabolic Disease	PBHL 3021	Fundamentals of Health Promotion
CHEM 4828	Biochemistry Lab	PBHL 3030	Health Policy
CHEM 4835	Biochemistry of Gene Regulation and Cancer	PBHL 3031	Health, Human Biology and Behavior
CHEM 4845	Molecular Modeling and Drug Design	PBHL 3041	Health, Culture and Society
CHEM 4860	Bioinorganic Chemistry: Bioinorganic compounds in medicine	PBHL 3051	Mental Illness and Society
COMM 2500	Introduction to Health Communication	PBHL 3070	Perspectives in Global Health
COMM 4230	Nonverbal Communication	PBHL 3071	Global Topics In Sexual and Reproductive Health
COMM 4260	Communication and Conflict	PBHL 3081	Health in the City: Urban Health
COMM 4500	Health Communication	PBHL 3440	Medical Sociology
COMM 4525	Health Communication and Community	PBHL 4021	Community Health Assessment
COMM 4550	Rhetorics of Medicine & Health	PBHL 4031	Ethnographic Research In Public Health
COMM 4558	Digital Health Narratives	PBHL 4040	Social Determinants of Health
COMM 4575	Designing Health Messages	PBHL 4070	Health Disparities
COMM 4620	Health Risk Communication	PBHL 4080	Global Health Practice
COMM 4621	Visual Communication	PBHL 4200	The Global HIV/AIDS Epidemic

PBHL 4620	Health Risk Communication
PHIL 2441	Logic, Language and Scientific Reasoning
PHIL 3002	Ancient Greek Philosophy
PHIL 3022	Knowledge, Perception, and the Search for Objectivity: Modern Philosophy
PHIL 3150	History of Ethics
PHIL 4242	Medicine, Health Care, and Justice: Bioethics
PHYS 3151	Biophysics Outlook I
PHYS 3161	Biophysics Outlook II
PHYS 3251	Biophysics of the Body or PHYS 3252 Biophysics of the Body NM
PHYS 3451	Biophysics of the Cell or PHYS 3452 Biophysics of the Cell NM
PSYC 1000	Introduction to Psychology I
PSYC 1005	Introduction to Psychology II
PSYC 2205	Lifespan Developmental Psychology for Health Majors
PSYC 2220	Biological Basis of Behavior
PSYC 3144	Human Cognition
PSYC 3205	Human Development I: Child Psychology
PSYC 3215	Human Development II: Adolescence and Adulthood
PSYC 3222	Principles of Learning and Behavior
PSYC 3262	Health Psychology
PSYC 3264	Exercise, Brain and Behavior
PSYC 3265	Drugs, Brain and Behavior
PSYC 3305	Abnormal Psychology
PSYC 3724	Developmental Neuroscience
PSYC 3810	Neuropsychology
PSYC 4054	Behavioral Neuroscience
SOCY 1001	Understanding the Social World
SOCY 3440	Medical Sociology
SOCY 3115	Quantitative Methods & Analysis
SOCY 3119	Qualitative Methods
SOCY 3570	Death & Dying: Social & Medical Perspectives
SOCY 4050	Health Disparities
SOCY 4110	Sociology of Health Care
SOCY 4270	Social Meanings of Reproduction
SOCY 4650	Sociology of Adulthood and Aging
SPAN 1070	Spanish Medical Conversation for Beginners
SPAN 2070	Spanish Medical Conversation for Beginners II
SPAN 3740	Spanish for the Healthcare Professions I
SPAN 3750	Spanish for the Healthcare Professions II

**Total Hours****32**

<sup>1</sup> Students should choose courses in close consultation with the program director.

To learn more about the Student Learning Outcomes for this program, please visit our website (<https://clas.ucdenver.edu/health-professions-programs/allied-health-sciences-certificate/>).