

# SPECIFIC TRANSFER INFORMATION FOR EDUCATION AND PREPROFESSIONAL PROGRAMS

*Adapted from the State of California Commission on Teacher Credentialing*

## Education

Under *Every Student Succeeds Act (ESSA)* of 2015, every public school teacher must meet the applicable State certification and licensure requirements for their discipline. The state of California has specific requirements for CA public school teachers, with a variety of credentialing pathways. The following is a summary of the types of credentials available for TK-12 teachers (elementary, middle and high school, and special education).

### I. Teaching Credentials

There are various types of credentials for prospective TK-12 grade teachers that include:

1. Multiple-Subject credential for Elementary teachers: For instruction in multiple subjects as commonly taught in California elementary schools. The Multiple Subject Teaching Credential authorizes its holder to teach all areas of curriculum for grades TK – 8 in a self-contained classroom.
2. Single-Subject credential for Middle School and High School teachers: authorizes holders to teach specific subject(s) in most middle and high schools, TK-12, or in classes organized primarily for adults.
3. Education Specialist credential for Special Education teachers: authorizes holders to teach in disability areas of specialization in Mild/Moderate Disabilities, Moderate/Severe Disabilities, Deaf and Hard of Hearing, Visual Impairments, Physical and Health Impairments, or Early Childhood Special Education. Holders of this credential can teach in a variety of settings including general education settings, resource rooms, development centers, among others.

For all three, the commission issues two-level teaching credentials: 'preliminary' and 'clear'. A preliminary credential is the first document issued after an individual has met basic credential requirements. The clear credential is issued once all credential requirements have been completed and one is already teaching.

There is no state-issued credential for those wishing to teach at the college and university level. A minimum of a Master's degree is necessary in the subject matter to be taught. A Ph.D. is usually required for teaching at the university level.

#### Elementary School Education: Multiple - Subject Credential

Students who wish to teach elementary education may choose from several pathway options. One option is a traditional Commission-approved multiple subject teacher preparation program after the Bachelor's degree, leading to a Preliminary Multiple Subject Teaching

Credential or Preliminary Education Specialist Credential (to become a Special Education teacher).

In a second option, students may find it possible to concurrently complete the requirements for the bachelor's degree AND a preliminary credential in a standard four-to-five year full-time college program. These programs are referred to as Dual or Integrated Teacher Education Programs (ITEP) and are available at several universities and colleges. Students will complete their professional education courses AND student teaching while completing their bachelor's degree. One such program is "Urban Learning" at CSU Los Angeles. The majority of CSU's offer this pathway under the "Liberal Studies" major. The most common majors for students interested in pursuing elementary school teaching are Liberal Studies and Child Development.

Currently, in addition to the Baccalaureate degree and a commission-approved credential program (or Bachelor/Credential dual program), those wishing to teach in California must also meet the following requirements:

- Satisfy the basics skills requirement (which can be met by passing the California Basic Educational Skills test (CBEST)
- Verify subject matter competency (either through passing the appropriate California Subject Examination for Teachers (CSET) or complete a set of pre-approved courses from a teacher credential program)
- Pass the Reading Instruction Competency Assessment (RICA)
- Complete a course on the principles of the U.S. constitution or pass an exam at a regionally-accredited college or university

Currently, PCC prepares students for transfer to Cal State Los Angeles (Major areas: Child Development, Liberal Studies, Mexican American Studies, and Urban Learning); Cal State Fullerton (Liberal Studies and Child and Adolescent Development); Cal State Northridge (Liberal Studies and Child and Adolescent Development); Cal Poly Pomona (Liberal Studies and Gender, Ethnicity and Multicultural Studies – GEMS and Early Childhood Studies; University of California, Riverside (Liberal Studies); Mount St. Mary's College (Liberal Studies); Pacific Oaks College (Human Development and Early Childhood Education); and University of La Verne (Liberal Studies).

#### Middle School and High School Education: Single-Subject Credential

Those wishing to teach a particular subject in middle and/or high school have a variety of options. Typically, students major in the discipline they will teach and progress to the Single Subject Credential Program after the completion of a baccalaureate degree. For example, students wishing to teach high school English, usually major in English. There are however a few programs where the process of starting the Single Subject Teaching Credential begins prior to completing the baccalaureate degree. This is often in the areas of Science, Mathematics or English. For example, UC Riverside has an Integrated Program with a major in Mathematics.

Single-Subject Teaching Credential programs offer credentials in the following subjects:

- Agriculture
- Art
- Business
- English
- Foundational-Level Gen. Science
- Foundational-Level Mathematics

- Health Science
- Home Economics
- Industrial and Technology Ed.
- Mathematics
- Music
- Physical Education
- Science: Biological Sciences
- Science: Chemistry
- Science: Geosciences
- Science: Physics
- Social Science (includes History)
- World Language: English Language Development
- World Language: Languages other than English

In addition to a Baccalaureate degree and a commission-approved credential program (or Bachelor/Single-Subject credential dual program), those wishing to teach in California must also meet the following requirements:

- Satisfy the basics skills requirement (which can be met by passing the California Basic Educational Skills test (CBEST))
- Verify subject matter competency (either through passing the appropriate California Subject Examination for Teachers (CSET) or complete a set of pre-approved courses from a teacher credential program)
- Complete a course on the principles of the U.S. constitution or pass an exam at a regionally-accredited college or university

After transfer, students will be informed by the college or university as to whether they will be required to take the Single Subject CSET (California Subject Examination for Teachers) test or whether their subject matter preparation can be met by their major coursework in order to be eligible for the teaching credential program.

Specific program and major course requirements for the various colleges/universities are available on the Pasadena City College Transfer Requirements Tool: <http://pasadena.edu/academics/transfer-center/transfer-tool.php>, ASSIST: <http://assist.org>, or visit the Social Sciences Division in C321 or Counseling and Career Services in L104.

### Special Education: Education Specialist Credential

Those wishing to become Special Education teachers have a variety of options in terms of who they teach and their pathways. The various specialty areas in the Education Specialist credential include:

- *Mild/Moderate Disabilities (M/M)*: Includes specific learning disabilities; mild to moderate intellectual disabilities; other health impairment; serious emotional disturbance; and authorizes service in grades K–12 and in classes organized primarily for adults through age 22.
- *Moderate/Severe Disabilities (M/S)*: Includes autism; deaf-blindness; moderate to severe intellectual disabilities; multiple disabilities; serious emotional disturbance; and authorizes service in grades K–12 and in classes organized primarily for adults through age 22.
- *Autism Spectrum Disorders (ASD)* content is included in the new preliminary Education Specialist Instruction Teaching Credential programs for all specialty areas. The preliminary and clear credential authorizes the holder to provide autism instructional services to students within the specialty area(s) of their credential. The ASD

authorization appears as a separate authorization on the Education Specialist Instruction Credential.

- *Deaf and Hard of Hearing (DHH)*: Includes deafness; hearing impairment; deaf-blindness; and authorizes service to individuals ages birth through 22.
- *Visual Impairments (VI)*: Includes blindness; visual impairment; deaf-blindness; and authorizes service to individuals ages birth through 22.
- *Physical and Health Impairments (PHI)*: Includes orthopedic impairment; other health impairment; multiple disabilities; traumatic brain injury; and authorizes service to individuals ages birth through 22.
- *Early Childhood Special Education (ECSE)*: Includes the mild/moderate and moderate/severe disabilities listed above and traumatic brain injury, and authorizes service to children ages birth through transitional kindergarten only.
- *Language and Academic Development (LAD)*: Authorizes the holder to provide instructional services to students with academic communication and language needs to children in preschool, kindergarten, in grades 1-12 through age 22, and classes organized primarily for adults, but does not take the place of speech and language services as defined in Education Code section 56333.

An added authorization in Early Childhood Special Education is also available to individuals who hold a preliminary, Level I, professional clear, clear, Level II, or life special education teaching credential, and who complete a program through a Commission approved program sponsor. The ECSE Added Authorization authorizes the holder to provide special education services in the area of mild/moderate or moderate/severe disabilities for students ages birth through transitional Kindergarten as determined by the local level special education assessment.

In addition to earning the Baccalaureate degree and completing a commission-approved Education Specialist credential program (or Bachelor/Credential dual program), those wishing to become Special Education teachers in California must also meet the following requirements:

- Satisfy the basics skills requirement (which can be met by passing the California Basic Educational Skills test (CBEST))
- Verify subject matter competency (either through passing the appropriate California Subject Examination for Teachers (CSET) or complete a set of pre-approved courses from a teacher credential program)
- Pass the Reading Instruction Competency Assessment (RICA)
- Complete a course on the principles of the U.S. constitution or pass an exam at a regionally-accredited college or university

**For more information regarding specific requirements for the teaching and administrative credentials, please contact the PCC Hixon Teacher Preparation Program at [hixonteacherprep@pasadena.edu](mailto:hixonteacherprep@pasadena.edu).**

## II. Services Credential

The State of California provides for five categories of non-teaching credentials, which authorize their holders to provide specific non-classroom services to public schools. All require advanced preparation after the baccalaureate degree. Service credentials are issued in:

1. Counseling Services
2. Psychological Services
3. Social Work Services

4. Administrative Services
5. Health Services (School Nurse)
6. Library Services
7. Clinical-Rehabilitative Services (primarily speech and hearing therapists and audiologists, orientation and mobility specialists)

**The following excerpt is taken from: Services Credentials/State of California Commission on Teacher Credentialing Authorization**

State of California Commission on Teacher Credentialing  
1900 Capitol Avenue  
Sacramento, CA 95811-4213  
Email: [credentials@ctc.ca.gov](mailto:credentials@ctc.ca.gov)  
Website: [www.ctc.ca.gov](http://www.ctc.ca.gov)

### Speech-Language Pathology Services Credential

California has a two-tier structure for this credential that consists of a sequence of requirements, which the holder is given up to two years to complete. The two-year preliminary credential is the first document issued after an individual meets the specific credential requirements. Individuals receiving the preliminary credential are making a commitment to complete the process and obtain the clear credential. The clear credential is issued once all credential requirements have been completed. If requirements for the clear credential are not completed before the expiration of the preliminary, the holder will be unable to serve in California's public schools with that credential until those requirements are met and the document renewed.

#### Authorization

The Speech-Language Pathology Services Credential may be issued in any of the following areas:

- Language, Speech and Hearing
- Language, Speech and Hearing and Audiology
- Language, Speech and Hearing including Special Class Authorization
- Language, Speech and Hearing and Audiology including Special Class Authorization

The Speech-Language Pathology Services Credential in Language, Speech and Hearing authorizes the holder to conduct Language, Speech, and Hearing Assessments and provide Educational Services, provide specific learning disability area services related to speech and language, and special education services to individuals with language and speech impairments across the special education disability areas, to students from birth through age 22 in services across the continuum of program options available found in California Code of Regulations Title 5 Section 80048.9.3 (see Terms and Definitions).

#### Special Class Authorization

The Special Class Authorization (SCA) is a teaching authorization that may be added to a credential that authorizes providing speech services. The SCA authorizes the holder to provide instructional services to special need students in the area of autism and speech and language impairment who are identified through the local level special education assessment, and to conduct Educational Assessments related to students' access to the academic core curriculum and Special Education Support (see Terms and Definitions).

Since the SCA is a teaching authorization, requirements have been updated to include satisfying subject-matter competence, reading, and English learner requirements to align with other special education teaching authorizations on the Education Specialist Teaching Credential as well as No Child Left Behind compliance. While many Commission-

approved programs and employers currently require individuals to meet the updated requirements, individuals will be held to complete these requirements to earn the SCA effective issuance date July 1, 2012.

### III. Pupil Personnel Services Credential for Individuals Prepared in California

The Pupil Personnel Services Credential authorizes any of the following four specializations: school counseling, school social work, school psychology, and school child welfare and attendance services. The authorization and requirements for each specialization are listed below.

#### School Counseling

The specialization in School Counseling authorizes the holder to perform the following duties:

- Develop, plan, implement, and evaluate a school counseling and guidance program that includes academic, career, personal, and social development
- Advocate for the high academic achievement and social development of all students
- Provide schoolwide prevention and intervention strategies and counseling services
- Provide consultation, training, and staff development to teachers and parents regarding students' needs
- Supervise a district-approved advisory program as described in California Education Code, Section 49600

#### School Social Work

The specialization in School Social Work authorizes the holder to perform the following duties:

- Assess home, school, personal, and community factors that may affect a student's learning
- Identify and provide intervention strategies for children and their families, including counseling, case management, and crisis intervention
- Consult with teachers, administrators, and other school staff regarding social and emotional needs of students
- Coordinate family, school, and community resources on behalf of students

#### School Psychology

The specialization in School Psychology authorizes the holder to perform the following duties:

- Provide services that enhance academic performance
- Design strategies and programs to address problems of adjustment
- Consult with other educators and parents on issues of social development and behavioral and academic difficulties
- Conduct psycho-educational assessment for purposes of identifying special needs
- Provide psychological counseling for individuals, groups, and families
- Coordinate intervention strategies for management of individuals and schoolwide crises

#### Child Welfare and Attendance

The specialization in Child Welfare and Attendance authorizes the holder to perform the following duties:

- Access appropriate services from both public and private providers, including law enforcement and social services

- Provide staff development to school personnel regarding state and federal laws pertaining to due process and child welfare and attendance laws
- Address school policies and procedures that inhibit academic success
- Implement strategies to improve student attendance
- Participate in schoolwide reform efforts
- Promote understanding and appreciation of those factors that affect the attendance of culturally-diverse student populations

#### IV. Administrative Services Credential for Individuals Prepared in California

California has a two-tier credential structure. A five-year preliminary credential is the first credential issued after an individual meets basic credential requirements. A clear credential is issued when all credential requirements have been completed. The Administrative Services Credential authorizes the holder to provide the following services in grades 12 and below, including preschool, and in classes organized primarily for adults:

- Develop, coordinate, and assess instructional programs
- Evaluate certificated and classified personnel
- Provide students' discipline, including but not limited to, suspension and expulsion
- Provide certificated and classified employees discipline, including but not limited to, suspension, dismissal, and reinstatement
- Supervise certificated and classified personnel
- Manage school site, district, or county level fiscal services
- Recruit, employ, and assign certificated and classified personnel
- Develop, coordinate, and supervise student support services, including but not limited to extracurricular activities, pupil personnel services, health services, library services, and technology support services

#### Pre-professional Programs

The information below is intended to provide a general list of courses that are required by most graduate level/professional programs. Requirements can vary from school to school. Students are urged to contact the specific schools they are considering for up-to-date information. This list of classes should be combined with requirements for general education and major requirements to achieve a Bachelor's degree prior to entry to a professional program. Students are advised to meet with a counselor in L104 to make an education plan that will insure coverage of all essential areas of study.

- Pre-Chiropractic
- Pre-Dentistry
- Pre-Law
- Pre-Medicine
- Pre-Optometry
- Pre-Pharmacy
- Pre-Physical Therapy
- Pre-Physician Assistant
- Pre-Veterinary Medicine

The general information provided here reflects those courses that may be completed at Pasadena City College in preparation for these fields of study.

#### Chiropractic

(pre-chiropractic classes)

Chiropractic is a distinct profession in the field of health based on the principle of neurogenic control of physiological processes. The educational program is designed to instruct students in nutritional, manipulative, psychological and allied approaches to healing. Preparation for the major generally includes such coursework as biology, chemistry, anatomy, physics, psychology, and English composition.

Lower-division requirements may vary among colleges of chiropractic. In Southern California there is one chiropractic school: Southern California University of Health Sciences. For more specific details, students should see a counselor in order to plan a program to complete the necessary coursework before transfer. Students should also visit: [www.scuhs.edu](http://www.scuhs.edu) or [www.NaturalHealers.com](http://www.NaturalHealers.com). (<http://www.NaturalHealers.com>)

Pre-Chiropractic courses at PCC typically include the following:

Code	Title	Units
ANAT 025	HUMAN ANATOMY	4
PYSO 001	HUMAN PHYSIOLOGY	4
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
CHEM 001A & CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	10
CHEM 008A & CHEM 008B	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY II	10
ENGL 001A	READING AND COMPOSITION	4
	or ENGL 001AH HONORS READING AND COMPOSITION	
	Select one of the following:	8-15
PHYS 031A & PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS I and CALCULUS-BASED COLLEGE PHYSICS II	
PHYS 002A & PHYS 002B	GENERAL PHYSICS and GENERAL PHYSICS	
PHYS 001A & PHYS 001B & PHYS 001C	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS and GENERAL PHYSICS and GENERAL PHYSICS	
PSYC 001	INTRODUCTORY PSYCHOLOGY	3
	or PSYC 001H HONORS INTRODUCTORY PSYCHOLOGY	

**Total Units** **55-62**

#### Dentistry

(pre-dental classes)

There are six dental schools in California: University of California, Los Angeles; University of California, San Francisco; University of Southern California, Loma Linda University, University of the Pacific, and Western University of Health Sciences. Dentistry requires excellent scholastic ability and a high degree of manipulative skill. Except in unusual cases, three or four years of pre-dental work are required, making dentistry a seven- or eight-year program. Lower-division requirements for the major may differ widely among four-year colleges and universities. For more specific details, students should plan to meet with a counselor to



plan transfer coursework, and should also visit the following website: [www.adea.org](http://www.adea.org) (<http://www.adea.org>) or [www.ada.org](http://www.ada.org).

Pre-Dental courses at PCC typically include the following:

Code	Title	Units
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
CHEM 001A & CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	10
CHEM 008A & CHEM 008B	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY II	10
MATH (requirements vary from school to school)		
Select one of the following:		8-15
PHYS 031A & PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS I and CALCULUS-BASED COLLEGE PHYSICS II	
PHYS 002A & PHYS 002B	GENERAL PHYSICS and GENERAL PHYSICS	
PHYS 001A & PHYS 001B & PHYS 001C	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS and GENERAL PHYSICS and GENERAL PHYSICS	
ART 032A	DESIGN-THREE DIMENSIONAL (recommended)	3
ART 038A	CERAMICS (recommended)	3
<b>Total Units</b>		<b>46-53</b>

## Law

(pre-law classes)

The majority of law schools require a bachelor's degree prior to entry. However, there is no set of specific pre-law courses. Law school admission personnel commonly ask pre-law students to choose a major in which a student will develop writing and critical thinking skills. Therefore, many pre-law students choose to finish a bachelor's degree in fields like political science, history, philosophy, and English. However, a student may pursue a degree in business, psychology, biology, or any major that he or she believes is best in terms of preparation for future study and life-long goals. For more information, students may wish to visit: [www.americanbar.org](http://www.americanbar.org), or [stu.findlaw.com](http://stu.findlaw.com) (<https://lawstudents.findlaw.com/>).

Pre-Law courses at PCC typically include the following:

Code	Title	Units
ENGL 001C	INTERMEDIATE COMPOSITION-CRITICAL THINKING AND ARGUMENT	4
ENGL 001CH	HONORS INTERMEDIATE COMPOSITION-CRITICAL THINKING AND ARGUMENT	4
PHIL 003	ETHICS	3
PHIL 007	CONTEMPORARY MORAL PROBLEMS	3
PHIL 025	INTRODUCTION TO CRITICAL THINKING	3
PHIL 030	LOGIC	3
PHIL 033	INTRODUCTION TO SYMBOLIC LOGIC	3

PHSC 002	SCIENTIFIC METHOD AS CRITICAL THINKING	3
<b>Total Units</b>		<b>26</b>

## Medicine

(pre-med classes)

There are more than ten medical schools in California: The Universities of California at Davis, Irvine, Los Angeles, Riverside, San Diego, and San Francisco; University of Southern California; Loma Linda University; Stanford University; Western University of the Health Sciences, and Touro University. The study of medicine requires excellent scholastic ability and good human interaction and communication skills. Except in unusual cases, four years of pre-med work are required, making medicine an eight-year program. Preparatory classes for this field of study may differ among medical schools. For more specific details, students should plan to meet with a counselor to plan transfer coursework, and should also visit the following websites: [www.aamc.org/amcas](http://www.aamc.org/amcas) (<http://www.aamc.org/amcas/>), [www.aacom.org](http://www.aacom.org) (<http://www.aacom.org>), [www.aamc.org/mcatprep](http://www.aamc.org/mcatprep), or [www.amsa.org](http://www.amsa.org) (<http://www.amsa.org>).

Pre-Med courses at PCC typically include the following:

Code	Title	Units
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
CHEM 001A & CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	10
CHEM 008A & CHEM 008B	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY II	10
Select one of the following:		8-15
PHYS 031A & PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS I and CALCULUS-BASED COLLEGE PHYSICS II	
PHYS 002A & PHYS 002B	GENERAL PHYSICS and GENERAL PHYSICS	
PHYS 001A & PHYS 001B & PHYS 001C	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS and GENERAL PHYSICS and GENERAL PHYSICS	
MATH (requirements vary from school to school)		
Recommended for MCAT beginning in 2015:		
PSYC 001 or PSYC 001H	INTRODUCTORY PSYCHOLOGY HONORS INTRODUCTORY PSYCHOLOGY	3
SOC 001	INTRODUCTORY SOCIOLOGY	3
<b>Total Units</b>		<b>46-53</b>

## Optometry

(pre-optometry classes)

Optometry curricula are four years in duration and require three to four years of preparatory college work, much of which may be completed at Pasadena City College. There are three schools in California: University of California, Berkeley; Southern California College of Optometry; and Western University of Health Sciences. Many students interested in pursuing optometry receive undergraduate degrees in such majors as biological sciences prior to admission. For more information, students

should meet with a counselor to plan transfer coursework, and should also visit the following websites: [www.opted.org](http://www.opted.org) or [www.aapt.org](http://www.aapt.org).

Pre-Optometry courses at PCC typically include the following:

Code	Title	Units
ANAT 025	HUMAN ANATOMY	4
PYSO 001	HUMAN PHYSIOLOGY	4
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
CHEM 001A & CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	10
CHEM 008A & CHEM 008B	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY II	10
ENGL 001A	READING AND COMPOSITION	4
	or ENGL 001AH HONORS READING AND COMPOSITION	
ENGL 001B	READING AND COMPOSITION	4
	or ENGL 001BH HONORS READING AND COMPOSITION	
Select one of the following:		8-15
PHYS 031A & PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS I and CALCULUS-BASED COLLEGE PHYSICS II	
PHYS 002A & PHYS 002B	GENERAL PHYSICS and GENERAL PHYSICS	
PHYS 001A & PHYS 001B & PHYS 001C	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS and GENERAL PHYSICS and GENERAL PHYSICS	
MATH 005A	SINGLE VARIABLE CALCULUS I	5
MICR 002	MICROBIOLOGY	4
PSYC 001	INTRODUCTORY PSYCHOLOGY	3
	or PSYC 001H HONORS INTRODUCTORY PSYCHOLOGY	
STAT 018	STATISTICS FOR BEHAVIORAL AND SOCIAL SCIENCES	4
	or STAT 050 ELEMENTARY STATISTICS	
<b>Total Units</b>		<b>72-79</b>

## Pharmacy

(pre-pharm classes)

There are eleven schools of Pharmacy in California: University of California, San Francisco; University of California, San Diego; University of the Pacific; University of Southern California; Western University of Health Sciences; Touro University; Loma Linda University; Chapman University; Keck Graduate Institute; West Coast University; and California Northstate University. As of December 2019, two schools in candidate status include California Health Sciences University (Clovis), and Marshall B. Ketchum University (Fullerton), and one school in precandidate status includes American University of Health Sciences School of Pharmacy (Signal Hill). Pharmacy curricula are four years in duration and require three to four years of preparatory college work that may be completed at Pasadena City College. Lower-division requirements for the major may vary among these colleges and universities. For more specific details, students should see a counselor and visit [www.aacp.org](http://www.aacp.org), [www.pharmcas.org](http://www.pharmcas.org), [www.pharmacy.ca.gov](http://www.pharmacy.ca.gov), or [www.pcatweb.info](http://www.pcatweb.info).

Pre-Pharmacy courses at PCC typically include the following:

Code	Title	Units
ANAT 025	HUMAN ANATOMY	4
PYSO 001	HUMAN PHYSIOLOGY	4
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
CHEM 001A & CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	10
CHEM 008A & CHEM 008B	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY II	10
ECON 001A & ECON 001B	PRINCIPLES OF MACROECONOMICS and PRINCIPLES OF MICROECONOMICS	6
ENGL 001A	READING AND COMPOSITION	4
	or ENGL 001AH HONORS READING AND COMPOSITION	
ENGL 001B	READING AND COMPOSITION	4
	or ENGL 001BH HONORS READING AND COMPOSITION	
MATH 005A	SINGLE VARIABLE CALCULUS I	5
MICR 002	MICROBIOLOGY	4
Select one of the following:		8-15
PHYS 031A & PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS I and CALCULUS-BASED COLLEGE PHYSICS II	
PHYS 002A & PHYS 002B	GENERAL PHYSICS and GENERAL PHYSICS	
PHYS 001A & PHYS 001B & PHYS 001C	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS and GENERAL PHYSICS and GENERAL PHYSICS	
PSYC 001	INTRODUCTORY PSYCHOLOGY	3
	or PSYC 001H HONORS INTRODUCTORY PSYCHOLOGY	
SPCH 001	FUNDAMENTALS OF SPEECH	3
	or SPCH 010 INTERPERSONAL COMMUNICATION	
<b>Total Units</b>		<b>77-84</b>

## Physical Therapy

(pre-physical therapy classes)

Physical Therapy is the treatment of disease or injury by the use of physical means such as heat, cold, sunlight, water, electricity, massage, and exercise. Physical therapists help people overcome or adjust to disabilities caused by illness, injury, or birth defects. They also plan and administer treatments, on referral by physicians.

Physical therapy programs are master's and doctoral degree programs. Entrance requirements are highly competitive and vary widely among schools. Generally, a bachelor's degree in any field is required for admission. Physical therapy schools in California approved by the American Physical Therapy Association include Azusa Pacific University; Chapman University; Loma Linda University; University of Southern California; University of the Pacific; Western University of Health Sciences; West Coast University; University of St. Augustine for Health Sciences; Samuel Merritt University; Mount Saint Mary's University; University of California, San Francisco; and California State Universities

at Fresno, Long Beach, Northridge, Sacramento, and San Diego. For more specific details, student should see a counselor and visit [www.apta.org](http://www.apta.org).

Pre-Physical Therapy courses at PCC typically include the following:

Code	Title	Units
ANAT 025	HUMAN ANATOMY	4
PYSO 001	HUMAN PHYSIOLOGY	4
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
Select one of the following:		8-10
CHEM 001A & CHEM 001B I	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	
CHEM 002A & CHEM 002B	CHEMISTRY - GENERAL, ORGANIC AND BIOCHEMISTRY I and CHEMISTRY-GENERAL, ORGANIC AND BIOCHEMISTRY II	
ECON 001A or ECON 001B	PRINCIPLES OF MACROECONOMICS or PRINCIPLES OF MICROECONOMICS	3
Select one of the following:		4-5
MATH 003	COLLEGE ALGEBRA FOR STEM	
MATH 008	PRECALCULUS TRIGONOMETRY	
MATH 009	PRECALCULUS MATHEMATICS	
MATH 005A	SINGLE VARIABLE CALCULUS I	
MICR 002	MICROBIOLOGY	4
Select one of the following:		8-15
PHYS 031A & PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS I and CALCULUS-BASED COLLEGE PHYSICS II	
PHYS 002A & PHYS 002B	GENERAL PHYSICS and GENERAL PHYSICS	
PHYS 001A & PHYS 001B & PHYS 001C	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS and GENERAL PHYSICS and GENERAL PHYSICS	
PSYC 001 or PSYC 001H	INTRODUCTORY PSYCHOLOGY or HONORS INTRODUCTORY PSYCHOLOGY	3
PSYC 024	LIFESPAN DEVELOPMENTAL PSYCHOLOGY	3
SPCH 001 or SPCH 010	FUNDAMENTALS OF SPEECH or INTERPERSONAL COMMUNICATION	3
STAT 018 or STAT 050	STATISTICS FOR BEHAVIORAL AND SOCIAL SCIENCES or ELEMENTARY STATISTICS	4
<b>Total Units</b>		<b>60-70</b>

## Physician Assistant

(pre-PA classes)

There are 7 fully accredited physician assistant programs in California: University of California, Davis; Stanford University; the University of Southern California; Western University of Health Sciences; Marshall B. Ketchum University; Loma Linda University; and Touro University. Most of these programs are master's degree programs; others offer bachelor or associate degrees. A physician assistant is a skilled health care professional who, under the supervision of a physician, performs a variety

of medical, diagnostic, and therapeutic services. A bachelor's degree or higher is recommended but not required to practice in this profession. Physician Assistants must pass preadmission competency tests in the sciences as well as the National Certifying Examination. A grade of C or better is required in all prerequisite courses. Lower-division requirements for the major may differ widely among four-year colleges and universities. For more specific details, students should see a counselor and visit [www.aapa.org](http://www.aapa.org) or [www.paeaonline.org](http://www.paeaonline.org).

Pre-Physician Assistant courses at PCC typically include the following:

Code	Title	Units
ANAT 025	HUMAN ANATOMY	4
PYSO 001	HUMAN PHYSIOLOGY	4
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
Select one of the following:		8-10
CHEM 001A & CHEM 001B I	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	
CHEM 002A & CHEM 002B	CHEMISTRY - GENERAL, ORGANIC AND BIOCHEMISTRY I and CHEMISTRY-GENERAL, ORGANIC AND BIOCHEMISTRY II	
ENGL 001A or ENGL 001AHHONORS	READING AND COMPOSITION or READING AND COMPOSITION	4
ENGL 001B or ENGL 001BHONORS	READING AND COMPOSITION or READING AND COMPOSITION	4
Select one of the following:		4-5
MATH 003	COLLEGE ALGEBRA FOR STEM	
MATH 008	PRECALCULUS TRIGONOMETRY	
MATH 009	PRECALCULUS MATHEMATICS	
MATH 005A	SINGLE VARIABLE CALCULUS I	
MICR 002	MICROBIOLOGY	4
ANTH 002 or ANTH 002H	CULTURAL ANTHROPOLOGY or HONORS CULTURAL ANTHROPOLOGY	3
PSYC 001 or PSYC 001H	INTRODUCTORY PSYCHOLOGY or HONORS INTRODUCTORY PSYCHOLOGY	3
SOC 001	INTRODUCTORY SOCIOLOGY	3
<b>Total Units</b>		<b>53-56</b>

## Veterinary Medicine

(pre-veterinary classes)

This profession offers opportunities in private practice, government service, state or municipal service, teaching and commercial work, such as production and testing of vaccines and serums. Veterinary medicine or science deals with prevention, control, care, and treatment of disease of domesticated animals and poultry, and supply and control of food and other products derived from them for human use. State laws regulate the practice of veterinary medicine and must be complied with before veterinarians can legally practice. An undergraduate major should be selected on the basis of individual interest and aptitude; there is no advantage gained toward admission by selecting one major over another. Experience with animals is considered an important part of the

professional training. There are two veterinary medicine programs in California: University of California, Davis and Western University of the Health Sciences. Candidates must complete the equivalent of at least three full academic years of college or the baccalaureate degree before applying to the professional school. Students should see a counselor for specific information, and visit [www.avma.org](http://www.avma.org), [www.aavmc.org](http://www.aavmc.org), [www.aavsb.org](http://www.aavsb.org), [www.vetmed.ucdavis.edu](http://www.vetmed.ucdavis.edu), or [www.westernu.edu/veterinary](http://www.westernu.edu/veterinary).

Pre-Veterinary courses at PCC typically include the following:

Code	Title	Units
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
BIOL 010B	THE DIVERSITY OF LIFE ON EARTH: STRUCTURE, FUNCTION AND ECOLOGY	4
BIOL 010C	GENETICS	3
CHEM 001A & CHEM 001B	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I and GENERAL CHEMISTRY AND CHEMICAL ANALYSIS	10
CHEM 008A & CHEM 008B	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY II	10
Select one of the following:		8-15
PHYS 031A & PHYS 031B	CALCULUS-BASED COLLEGE PHYSICS I and CALCULUS-BASED COLLEGE PHYSICS II	
PHYS 002A & PHYS 002B	GENERAL PHYSICS and GENERAL PHYSICS	
PHYS 001A & PHYS 001B & PHYS 001C	PHYSICS FOR SCIENTISTS AND ENGINEERS I: MECHANICS and GENERAL PHYSICS and GENERAL PHYSICS	
STAT 050	ELEMENTARY STATISTICS	4
<b>Total Units</b>		<b>44-51</b>