

# ENGINE REPAIR AND MACHINIST SPECIALIZATION (Auto Technology)

## DEGREES, CERTIFICATES AND AWARDS

Certificate of Achievement

### DESCRIPTION

The Engine Repair and Machinist Specialization Certificate of Achievement program is designed to prepare students for employment as Engine Repair and Machinist Specialists. The program will provide the necessary skills and knowledge through the use of modern tools and equipment to repair automotive engines and perform specialty work in machine shops. Students will learn to use honing and boring machines and motor balancing. Students will be working with high performance engines as well as using blueprint measurements. This program will prepare students for employment in the following fields: general mechanics, engine specialist, engine machinist specialist and high performance engine applications. In addition, the students will gain the necessary knowledge and preparation to pursue the State of California Emission Control License. Upon successful completions of this program, students will be prepared to take the Automotive Service Excellence (ASE) exams for Engine Repair (Test A1), and Machinist Specialist (M1, M2, and M3).

### PROGRAM LEARNING OUTCOMES

1. Demonstrate safe operation of hand tools and equipment.
2. Identify major machine shop equipment components, construction machines and high power units.
3. Diagnose major component failures and recommend repairs.
4. Perform typical major component repairs.

### CERTIFICATE OF ACHIEVEMENT PROGRAM

The **Certificate of Achievement** program is designed for students with personal or occupational goals who wish early employment. To qualify for the Certificate, a student must satisfy the following requirements: (1) complete all courses listed for a particular certificate; (2) achieve a "C" average (2.0 GPA) for all courses used to complete the certificate; and, (3) file a Certificate Application form with Admissions and Records by the appropriate deadline(s) identified on the application.

### CAREER OPPORTUNITIES

Jobs are available with auto repair and machine shops as general mechanics, engine specialists, engine machinist specialists and high performance engine applications. Experienced technicians with leadership ability may advance to shop supervisors, service writers and service managers.

### FINANCIAL AID

Paying for the cost of a college education requires a partnership among parents, students and the college. As the cost of higher education continues to rise we want you to know that IVC offers a full array of financial aid programs – grants, work study, scholarships, and fee waivers (we do not participate in the federal loan programs). These programs are available to both full and part time students who are seeking a degree or certificate. For those who qualify, financial aid is available to help with tuition, fees, books and supplies, food, housing, transportation, and childcare. Please log onto our website for additional information: [www.imperial.edu/students/financial-aid-and-scholarships/](http://www.imperial.edu/students/financial-aid-and-scholarships/)

# ENGINE REPAIR AND MACHINIST SPECIALIZATION (Auto Technology)

## CERTIFICATE PROGRAM

### ENGINE REPAIR AND MACHINIST SPECIALIZATION

Twenty-two (22.0) units required for the certificate.

ALL COURSES FOR THIS CERTIFICATE MUST BE COMPLETED WITH A MINIMUM GRADE OF "C" OR BETTER.

#### I. Required courses for the certificate:

AUT	075	Basic Shop Skills	3.0
AUT	110	Engine Technology	4.0
AUT	120	Automotive Machine Shop	4.0
AUT	122	High Performance Engine Blueprinting I	4.0
WELD	100	Welding Technology	5.0
WE	201	Employment Readiness	1.0
WE	220	Internship	1.0

**Total Certificate Units** **22.0**

# CHEMISTRY (For Transfer)

## DEGREES, CERTIFICATES AND AWARDS

Associate in Science Degree in Chemistry for Transfer (AS-T)

### DESCRIPTION

Chemistry is the study of matter and its transformations. This curriculum provides the beginning basics of a two-year transfer program with emphasis on the chemical nature of matter. This program fulfills the lower division requirements for such majors as chemistry, dentistry, medicine, pharmacy, and environmental science.

**The Associate in Science for Transfer (AS-T) is intended for students who plan to complete a bachelor's degree in a similar major at a CSU campus. Students completing this degree (AS-T) are guaranteed admission to the CSU system, but not to a particular campus or major.**

### PROGRAM LEARNING OUTCOMES

1. Demonstrate critical thinking skills related to the scientific methods such as hypothesis development, experimentation, and data interpretation.
2. Articulate fundamental chemical concepts and knowledge as related to natural and chemical phenomena at large.
3. Perform experiments using standard laboratory glasswares and techniques used in the chemical sciences.

### ASSOCIATE DEGREE PROGRAM ( For Transfer)

**The Associate in Arts for Transfer (AA-T) or the Associate in Science for Transfer (AS-T) degree** is intended for students who plan to complete a bachelor's degree in a similar major at a CSU campus. Students completing these degrees (AA-T or AS-T) are guaranteed admission to the CSU system, but not to a particular campus or major. In order to earn one of these degrees, students must complete 60 semester units of CSU transferable coursework with a minimum GPA of 2.0. Students transferring to a CSU campus that does accept the AA-T or AS-T will be required to complete no more than 60 units after transfer to earn a bachelor's degree (unless the major is a designated "high-unit" major). This degree may not be the best option for students intending to transfer to a particular CSU campus or to university or college that is not part of the CSU system. Students should consult with a counselor when planning to complete this degree for more information on university admission and transfer requirements.

### CAREER OPPORTUNITIES

Of the career opportunities identified many will usually require the completion of degree requirements at 4-year colleges and universities.

- Agrochemistry
- Analytical Chemistry
- Astrochemistry
- Atmospheric Chemistry
- Biochemistry
- Biotechnology
- Chemical Engineering
- Chemical Technology
- Chemical Sales
- Environmental Chemistry
- Ethnobotany
- Food Chemistry
- Forensic Science
- Materials Science
- Medicine
- Oceanography
- Organic Chemist
- Pharmaceuticals
- Physical Chemistry
- Plastics Industry
- R&D Management
- Science Writer
- Surface Chemistry
- Science Teacher
- Textile Industry



### TRANSFER PREPARATION

Courses that fulfill major requirements for an associate degree at Imperial Valley College may not be the same as those required for completing the major at a transfer institution offering a bachelor's degree. Students who plan to transfer to a four-year college or university should schedule an appointment with an IVC Counselor to develop a student education plan (SEP) before beginning their program.

#### Transfer Resources:

[www.ASSIST.org](http://www.ASSIST.org) – CSU and UC Articulation Agreements and Majors Search Engine

[www.CSUMentor.edu](http://www.CSUMentor.edu) – CSU System Information

[www.universityofcalifornia.edu/admissions/index.html](http://www.universityofcalifornia.edu/admissions/index.html) – UC System Information

[www.aiccu.edu](http://www.aiccu.edu) – California Independent Colleges and Universities, Association of

<http://wiche.edu/wue> – Western Undergraduate Exchange Programs

### FINANCIAL AID

Paying for the cost of a college education requires a partnership among parents, students and the college. As the cost of higher education continues to rise we want you to know that IVC offers a full array of financial aid programs – grants, work study, scholarships, and fee waivers (we do not participate in the federal loan programs). These programs are available to both full and part time students who are seeking a degree or certificate. For those who qualify, financial aid is available to help with tuition, fees, books and supplies, food, housing, transportation, and childcare. Please log onto our website for additional information: [www.imperial.edu/students/financial-aid-and-scholarships/](http://www.imperial.edu/students/financial-aid-and-scholarships/)

# CHEMISTRY (For Transfer)

## ASSOCIATE DEGREE PROGRAM

### CHEMISTRY

Associate in Science Degree in Chemistry for Transfer (AS-T) – 36.0 units

ALL COURSES FOR THIS MAJOR MUST BE COMPLETED WITH A MINIMUM GRADE OF "C" OR BETTER.

#### REQUIREMENTS FOR THE DEGREE

- I. **Units/GPA** – Must complete 60 CSU transferable semester units with a minimum grade point average (GPA) of at least 2.0 in all CSU transferable coursework. *NOTE: While a minimum of 2.0 is required for admission, some institutions and majors may require a higher GPA. Please consult with a counselor for more information.*
- II. **General Education** – Must complete the Intersegmental General Education Transfer Curriculum (IGETC) for STEM – 31 units minimum
- III. **Thirty-six (36) units required for the major**

#### Required for the Major (36.0 units)

CHEM	200	General Inorganic Chemistry I	5.0
CHEM	202	General Inorganic Chemistry II	5.0
CHEM	204	Organic Chemistry I	5.0
CHEM	206	Organic Chemistry II	5.0
PHYS	200	General Physics I	4.0
PHYS	202	General Physics II	4.0
MATH	192	Analytic Geometry and Calculus I	4.0
MATH	194	Analytic Geometry and Calculus II	4.0
Total Major Units			36.0
IGETC for STEM Pattern			31.0
Electives (as needed to reach 60 CSU transferable units)			—
<b>Total Maximum Units:</b>			<b>60.0</b>

# POLITICAL SCIENCE (For Transfer)

## DEGREES, CERTIFICATES AND AWARDS

Associate in Arts Degree in Political Science for Transfer (AA-T)

### DESCRIPTION

Political Science, or Government, is the study of the acquisition and use of public power and authority. Politics and government affect everyone's life and impinge on activities in many fields. The introductory courses are for the student interested in learning about American Government and different political cultures in the world. The political science major is especially desirable for students who might work for civil government at any level, be commissioned as military officers or who intend to become lawyers. A major and/or minor in political science at a four-year institution is useful in such fields as economics, history, journalism and language or for those who hope to become executives in law enforcement or in many types of businesses.

The Associate in Arts for Transfer (AA-T) is intended for students who plan to complete a bachelor's degree in a similar major at a CSU campus. Students completing this degree (AA-T) are guaranteed admission to the CSU system, but not to a particular campus or major.

### PROGRAM LEARNING OUTCOMES

1. Use critical thinking skills to develop an understanding of the international community.
2. Develop an appreciation and understanding of the American political system from historical, political, economic, and social perspectives.
3. Develop an understanding of the world's major political ideologies to include liberalism, socialism, communism, and conservatism.

### ASSOCIATE DEGREE PROGRAM ( For Transfer)

The Associate in Arts for Transfer (AA-T) or the Associate in Science for Transfer (AS-T) degree is intended for students who plan to complete a bachelor's degree in a similar major at a CSU campus. Students completing these degrees (AA-T or AS-T) are guaranteed admission to the CSU system, but not to a particular campus or major. In order to earn one of these degrees, students must complete 60 semester units of CSU transferable coursework with a minimum GPA of 2.0. Students transferring to a CSU campus that does accept the AA-T or AS-T will be required to complete no more than 60 units after transfer to earn a bachelor's degree (unless the major is a designated "high-unit" major). This degree may not be the best option for students intending to transfer to a particular CSU campus or to university or college that is not part of the CSU system. Students should consult with a counselor when planning to complete this degree for more information on university admission and transfer requirements.

### TRANSFER PREPARATION

Courses that fulfill major requirements for an associate degree at Imperial Valley College may not be the same as those required for completing the major at a transfer institution offering a bachelor's degree. Students who plan to transfer to a four-year college or university should schedule an appointment with an IVC Counselor to develop a student education plan (SEP) before beginning their program.

#### Transfer Resources:

[www.ASSIST.org](http://www.ASSIST.org) – CSU and UC Articulation Agreements and Majors Search Engine

[www.CSUMentor.edu](http://www.CSUMentor.edu) – CSU System Information

[www.universityofcalifornia.edu/admissions/index.html](http://www.universityofcalifornia.edu/admissions/index.html) - UC System Information

[www.aiccu.edu](http://www.aiccu.edu) – California Independent Colleges and Universities, Association of

<http://wiche.edu/wue> - Western Undergraduate Exchange Programs

### FINANCIAL AID

Paying for the cost of a college education requires a partnership among parents, students and the college. As the cost of higher education continues to rise we want you to know that IVC offers a full array of financial aid programs – grants, work study, scholarships, and fee waivers (we do not participate in the federal loan programs). These programs are available to both full and part time students who are seeking a degree or certificate. For those who qualify, financial aid is available to help with tuition, fees, books and supplies, food, housing, transportation, and childcare. Please log onto our website for additional information: [www.imperial.edu/students/financial-aid-and-scholarships/](http://www.imperial.edu/students/financial-aid-and-scholarships/)

### CAREER OPPORTUNITIES

Of the career opportunities identified many will usually require the completion of degree requirements at 4-year colleges and universities.

- Administrative Analyst
- Budget Analyst
- Administrative Aide
- Administrator
- Administrative Assistant
- Lobbyist
- Personnel Manager
- Attorney
- Foreign Service Officer
- Campaign Aide
- Occupational Analyst
- Elected Official
- Government Worker
- Legislative Aide
- Political Economist
- Military Officer
- Public Information Officer
- Political Scientist
- Foreign Trade Specialist
- City Planner
- Public Relations Specialist
- Staff Member
- Public Opinion Surveyor

# POLITICAL SCIENCE (For Transfer)

## ASSOCIATE DEGREE PROGRAM

### POLITICAL SCIENCE

Associate in Arts Degree in Political Science for Transfer (AA-T) – 18.0-19.0 units

ALL COURSES FOR THIS MAJOR MUST BE COMPLETED WITH A MINIMUM GRADE OF "C" OR BETTER.

#### REQUIREMENTS FOR THE DEGREE

- I. **Units/GPA** – Must complete 60 CSU transferable semester units with a minimum grade point average (GPA) of at least 2.0 in all CSU transferable coursework. *NOTE: While a minimum of 2.0 is required for admission, some institutions and majors may require a higher GPA. Please consult with a counselor for more information.*
- II. **General Education** – Must complete one of the following general education transfer patterns:
  - A. California State University General Education Breadth Pattern (CSU GE-B) – 39 units minimum
  - B. Intersegmental General Education Transfer Curriculum (IGETC) – 37 units minimum
- III. **Eighteen (18) units required for the major.**

#### Required for the Major (3.0 units)

POLS	102	American Government & Politics	3.0
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**List A: Select three courses (9.0-10.0 units)** **9.0-10.0**

POLS	100	Introduction to Political Science (3.0)	
POLS	104	Comparative Politics (3.0)	
POLS	106	Introduction to International Relations (3.0)	
MATH	119	Elementary Statistics (4.0)	

**List B: Select two courses (6.0 units)** **6.0**

Any list A course not already used.

ANTH	102	Cultural Anthropology (3.0)	
ECON	101	Introduction to Micro Economics (3.0)	
ECON	102	Intro to Macro Economics (3.0)	
GEOG	102	Cultural Geography (3.0)	
HIST	100	Early World History (3.0)	
HIST	101	Modern World History (3.0)	
HIST	110	Early Western Civilization (3.0)	
HIST	111	Modern Western Civilization (3.0)	

Total Major Units	18.0-19.0
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CSU-GE or IGETC Pattern	37.0-39.0
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Electives (as needed to reach 60 CSU transferable units)

<b>Total Maximum Units:</b>	<b>60.0</b>
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