

General Education Equivalency Examples

Area A Natural Sciences

Courses in the natural sciences are those that examine the physical universe, its life forms, and its natural phenomena. To satisfy the general education requirement in natural sciences, a course shall be designed to help the student develop an appreciation and understanding of the scientific method and encourage an understanding of the relationships between science and other human activities (Title 5 §55063 (b)(1)(A)). This category would include introductory or integrative courses in astronomy, biology, chemistry, general physical science, geology, meteorology, oceanography, physical geography, physical anthropology, physics and other scientific disciplines.

Purpose for Including One Course (3 units) in Natural Sciences for General Education

- For students to develop the ability to examine the physical universe, its life forms, and its natural phenomena.
- For students to develop an appreciation of, understanding of, and ability to apply the scientific method.
- For students to develop the ability to understand the relationship between science and other human activities.

Examples of Course Identification Numbering System (C-ID)-Approved Courses Included in Area A Natural Sciences

This list of example courses may help equivalency committees understand the scope and content of the single course needed to meet the Area A requirement of an associate degree.

- AG-AS 104** Intro to Animal Science
- ANTH 110** Intro to Biological Anthropology
- BIOL 140** Organismal Biology
- BIOL 190** Cell and Molecular Biology

- CHEM 100** Chemistry and Society
- CHEM 102** Intro to Organic and Biochemistry
- CHEM 101** Intro to Chemistry
- CHEM/PHYS 140** Survey of Chem. & Physics
- GEOG 130** Introduction to Weather and Climate
- GEOL 120** Earth Science
- GEOL 121** Earth Science with Lab
- GEOL 130** Environmental Geology
- GEOL 100** Physical Geology
- GEOL 100L** Physical Geology with Lab
- GEOL 200** Geology of California
- PHYS 105** Algebra/Trigonometry-Based Physics

Evidence and Artifacts

All candidate equivalency documentation and information must be validated. Examples of validations may be an employer statement of experience or performance, external certifications or licensing, published papers or work products, industry-recognized credentials, exam scores, community service, plus any additional validation the local Equivalency Committee deems appropriate. The examples listed below are just a few samples and not a complete list.

Examples of Evidence Establishing Competency to General Education Area A

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| General Equivalency Examples | <ul style="list-style-type: none">•Artifact or work product documenting understanding and knowledge of our environment as it relates to specific sector, industry, or civic skills.•Artifact or work product documenting a defined purpose, constructed hypothesis/theory/idea, testing of the hypothesis, data collection, data analysis, development of conclusions, and communication of results as it relates to sector, industry, or civic-specific skills.•Artifact or work product demonstrating a sector, industry, or civic-based mechanical diagnosis and provision of solutions. |
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Examples of Evidence Establishing Competency to General Education Area A

Discipline-
Specific
Example:
Aviation

- A certified recreational, private, or commercial pilot must understand and apply principles of weather theory, weather behavior, and weather hazards.

- A certified recreational, private, or commercial pilot must understand and apply Newton’s Basic Laws of Motion and Bernoulli’s Principle.

- A certified recreational, private, or commercial pilot must interpret weather services, weather briefings, weather reports, forecasts, charts and multifunction weather displays.

Reference: Federal Aviation Regulation (FAR) 61.185(2) The aeronautical knowledge areas for a recreational, private, and commercial pilot certificate applicable to the aircraft industry for which flight instructor privileges are sought

Discipline-
Specific
Example:
**Automotive
Technician**

- A certified automotive technician must apply the scientific method to interpret service manuals, understand the theory of the systems being diagnosed, develop an initial hypothesis based on customer input, follow testing and diagnostic procedures to isolate and repair system defects, and verify the repair resolved the system defect.

- A National Institute for Automotive Service Excellence (ASE) Auto Maintenance and Light Repair Certification (G1) certified automotive technician must understand principles of fluid dynamics and hydraulics, composition of friction materials, and automotive electrical systems.

Discipline-
Specific
Example:
**Barbering,
Cosmetology**

- A licensed barber, cosmetologist, or esthetician must understand the interaction of specific chemicals with other chemicals and with human skin, hair, and nails.

- A licensed barber, cosmetologist, or esthetician must understand basic biologic principles as they relate to hair and skin.

- A licensed barber, cosmetologist, or esthetician must perform an analysis process before any application of product. Particular services require product formulations, predispositions testing, and strand testing prior to application.

Discipline-
Specific
Example:
**Emergency
Medical
Technologies**

- A certified Emergency Medical Technician (EMT) must understand the anatomy and physiology of the human body and apply appropriate medical responses to restore or maintain functions necessary for life.

- NOTE: While the EMT discipline requires only an Associate of Arts and six years of experience, national standards require additional elements.

Examples of Evidence Establishing Competency to General Education Area A

Discipline-
Specific
Example:
Welding

- An American Welding Society-certified welder has experience with multiple weld types and metals and applies knowledge of metallurgy, chemical properties, and the effect of temperature on chemical composition.

Discipline-
Specific
Example:
**Agricultural
Production**

- A livestock manager applies animal science and nutritional concepts to feeds and feeding to manage nutritional programs for livestock, breeding, and reproduction.
- A farm or ranch manager applies plant and soil science and chemical concepts for crop production, plant production, pesticide and fertilizer management and soil management.

Discipline-
Specific
Example:
**Culinary Arts/
Food Production**

A chef understands and applies chemical concepts while understanding bacteria and preventing disease, developing recipes (chemical properties), and cooking (thermal properties).

Discipline-
Specific
Example:
**Mortuary
Science**

- A licensed barber, cosmetologist, or esthetician must understand the interaction of specific chemicals with other chemicals and with human skin, hair, and nails.
- A licensed barber, cosmetologist, or esthetician must understand basic biologic principles as they relate to hair and skin.
- A licensed barber, cosmetologist, or esthetician must perform an analysis process before any application of product. Particular services require product formulations, predispositions testing, and strand testing prior to application.

Discipline-
Specific
Example:
**Fashion
and Related
Technologies**

- Textile developers and fashion designers must understand the effects of chemicals on different textiles.
- Textile developers and fashion designers utilize knowledge of chemistry in designing fabrics, designing and evaluating textile composition, and comparing textile properties.

General Education Equivalency Examples

Area B Social and Behavioral Sciences

Courses in the social and behavioral sciences are those that focus on people as members of society. To satisfy the general education requirement in social and behavioral sciences, a course shall be designed to develop an awareness of the method of inquiry used by the social and behavioral sciences. It shall be designed to stimulate critical thinking about the ways people act and have acted in response to their societies and should promote appreciation of how societies and social subgroups operate (Title 5 §55063 (b)(1)(B)). This category would include introductory or integrative survey courses in cultural anthropology, cultural geography, economics, history, political science, psychology, sociology and related disciplines.

Purpose for Including One Course (3 units) in Social and Behavioral Sciences for General Education

- For students to develop an awareness of the methods of inquiry used by the social and behavioral sciences.
- To stimulate students' critical thinking about ways people act or have acted in response to their societies.
- To promote students' appreciation of how societies and social subgroups operate.
- To develop or promote students' understanding and appreciation of ethnic groups (Title 5 §55063 (b)(2) requires a course in Ethnic Studies. It is most likely met through the course/experience/ability counted in Area B or Area C).

Examples of Course Identification Numbering System (C-ID) Courses Included in Area B Social and Behavioral Sciences

This list of example courses may help equivalency committees understand the scope and content of the single course needed to meet the Area A requirement of an associate degree.

ANTH 150 Introduction to Archaeology
ANTH 120 Introduction to Cultural Anthropology
ECON 201 Principles of Microeconomics
ECON 202 Principles of Macroeconomics
GEOG 120 Introduction to Human Geography
HIST 150 World History to 1500
HIST 160 World History since 1500
HIST 130 United States History to 1877
HIST 170 Western Civilization I
HIST 180 Western Civilization II
HIST 140 United States History since 1865
POLS 110 Intro to American Government and Politics
POLS 130 Intro to Comparative Government and Politics
POLS 150 Introduction to Political Science
POLS 120 Intro to Political Theory and Thought
POLS 140 Introduction to International Relations
PSY 120 Introduction to Abnormal Psychology
PSY 130 Introduction to Human Sexuality
PSY 115 Psychology of Personal and Social Adjustment
PSY 180 Introduction to Lifespan Psychology
PSY 110 Introductory Psychology
SOCI 140 Introduction to Gender
SOCI 160 Introduction to Crime
SOCI 110 Introduction to Sociology
SOCI 130 Introduction to Marriage and Family
SOCI 150 Introduction to Race and Ethnicity
SOCI 115 Social Problems

Evidence and Artifacts

All candidate equivalency documentation and information must be validated. Examples of validations may be an employer statement of experience or performance, external certifications or licensing, published papers or work products, industry-recognized credentials, exam scores, community service, plus any additional validation the local Equivalency Committee deems appropriate. The examples listed below are just a few samples and not a complete list.

Examples of Evidence Establishing Competency to General Education Area B

**General
Equivalency
Examples**

- Artifact or work product documenting awareness in social or institutional ethics, macro or micro economics, or local politics as it relates to sector, industry, or civic-specific skills.
- Artifact or work product documenting active involvement in community advocacy organizations as it relates to sector, industry, or civic-specific skills.
- Artifact or work product demonstrating completion or delivery of trainings related to sexual harassment, diversity, and cultural competency, keeping in mind the depth of knowledge and experience needed for equivalency to a course.
- Experience as a manager requires navigating social and institutional rules and ethics, understanding the impact of culture on employees' personal beliefs and behaviors.
- Elected officials have navigated politics, are aware of current and historical social problems, and understand human psychology/ motivation as it relates to social issues present in elections.

**Discipline-
Specific
Example:
Automotive
Technician**

- Automotive Service Excellence (ASE) certification in area C1 Automobile Service Consultant Certification Test requires an ability to understand and communicate with diverse customers with diverse needs. Technicians must utilize knowledge of social groups to interact constructively, communicate effectively, and to manage customer and internal relations.
 - A self-employed technician or business owner must apply microeconomic and macroeconomic concepts to predict and respond to market forces on consumer spending.
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Examples of Evidence Establishing Competency to General Education Area B

Discipline-Specific
Example:
**Barbering,
Cosmetology**

- Licensed barbers, cosmetologists, and estheticians must apply an understanding of diverse cultures to interact with and appropriately meet the hair, skin, and nail needs of a diverse clientele.

Discipline-Specific
Example:
**Culinary
Arts/Food
Production**

- A chef or culinary artist works with varied ethnic foods and understands and applies an understanding of foods and culture, as well as historical food trends.
- A chef or culinary artist must apply knowledge of global cultures and religions to interact positively with customers, prepare appropriate foods, and satisfy customer needs.

Discipline-Specific
Example:
**Mortuary
Science**

- A practitioner with Celebrant Training (Insight Institute), Association of Death Education certification, or certified funeral service practitioners all must apply knowledge of cultures, religions, and social customs to meet customer needs.

Discipline-Specific
Example:
**Fashion
and Related
Technologies**

- A fashioner designer or costume designer must apply knowledge of cultures and religions to create appropriate ethnic costumes and fashions.
- A fashion designer applies knowledge of textile/fabric evolution as well as the influence of fashion throughout history and within politics.

General Education Equivalency Examples

Area C Humanities

Courses in the humanities are those that study the cultural activities and artistic expressions of human beings. To satisfy the general education requirement in the humanities, a course shall be designed to help the student develop an awareness of the ways in which people throughout the ages and in different cultures have responded to themselves, and the world around them, in artistic and cultural creation and help the student develop aesthetic understanding and an ability to make value judgments (Title 5 §55063 (b)(1)(C)). Such courses could include introductory or integrative courses in the arts, foreign languages, literature, philosophy, and religion.

Purpose for Including One Course (3 units) in Humanities for General Education

- For students to develop an awareness of the way in which people throughout the ages and in different cultures have responded to themselves and the world around them in artistic and cultural creations.
- For students to develop or demonstrate aesthetic understanding and an ability to make value judgements.
- To promote students' understanding and appreciation of ethnic groups (Title 5 §55063 (b) (2) requires a course in Ethnic Studies. It is most likely met through the course/experience/ability counted in Area B or Area C).

Examples of Courses Included in Area C Humanities

This list of example courses may help equivalency committees understand the scope and content of the single course needed to meet the Area C requirement of an associate degree.

- ARTH 110** Survey of Western Art from Prehistory through the Middle Ages
- ARTH 120** Survey of Western Art from Renaissance to Contemporary
- ARTH 150** Survey of Modern Art
- ARTH 100** Understanding Art
- ARTH 130** Survey of Asian Art
- ENGL 160** Survey of British Literature I

ENGL 120 Introduction to Literature
ENGL 135 Survey of American Lit 2
ENGL 165 Survey of British Literature 2
ENGL 180 Children's Literature
ENGL 130 Survey of American Literature 1
ENGL 145 Survey of World Literature 2
ENGL 140 Survey of World Literature 1
PHIL 130 History of Ancient Philosophy
PHIL 140 History of Modern Philosophy
PHIL 100 Introduction to Philosophy
SPAN 110 Elementary Spanish II
SPAN 220 Spanish for Heritage Speakers I
SPAN 100 Elementary Spanish I
THTR 112 Theatre Appreciation
THTR 111 Introduction to Theatre

Evidence and Artifacts

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Examples of Evidence Establishing Competency to General Education Area C

**General
Equivalency
Examples**

- Artifact or work product demonstrating experience working and living in other cultures and with other languages.
 - Artifact or work product demonstrating an ability to understand and appreciate artistic and cultural creation.
 - Work products that demonstrate an understanding and application of culture and aesthetics.
 - Active participation in theater production.
 - Bilingual certification or ability to read, write or speak languages.
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Examples of Evidence Establishing Competency to General Education Area C

Discipline-
Specific
Examples:
Welding

- Production of artwork within the welding industry, including ornamental design.
- Evidence of artistic patternmaking or recreating historical artistic elements.
- Cultural or ethnic metallurgy (such as Sword making for different cultures).

Discipline-
Specific
Examples:
**Culinary
Arts/Food
Production**

- Chefs apply elements of art and aesthetics to prepare food attractively.
- Chefs apply knowledge of varied spices, including those specific to ethnic groups, to achieve desired results, artistically appealing to taste and smell .

Discipline-
Specific
Examples:
**Barbering,
Cosmetology**

- Licensed barbers or cosmetologists have learned the history of their trade, including the evolution of styles.
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General Education Equivalency Examples

Area D.1. Language and Rationality: English Composition & Associate Degree Competency in Written Expression

Courses in language and rationality are those that develop for the student the principles and applications of language toward logical thought, clear and precise expression and critical evaluation of communication in whatever symbol system the student uses (Title 5 §55063 (b)(1) (D)). Such courses shall include both expository and argumentative writing.

D.1. English Composition. Courses fulfilling the written composition requirement shall be designed to include both expository and argumentative writing.

- Students earning an associate degree must demonstrate competence in written expression. Traditionally, this competence is demonstrated by obtaining a satisfactory grade in an English course at the level of the course typically known as Freshman Composition. Any other considerations must be equivalent to this introductory course.
- Satisfactory completion of an English course at the level of Freshman Composition shall satisfy both this competency requirement and the Area D.1. coursework requirement (Title 5 §55063).

Purpose for Including English Competency and One Course (3 units) in Language and Rationality: English Composition for General Education

- For students to develop the principles and applications of language toward logical thought, clear and precise written expression and critical evaluation of written communication in whatever symbol system the student uses.
- For students to develop expository and argumentative writing skills (English Composition).

Course Needed to Satisfy Associate Degree Written Competency Requirement and Area D.1. Language and Rationality: English Composition

ENGLISH 100 College Composition – This introductory course offers instruction in expository and argumentative writing, appropriate and effective use of language, close reading, cogent thinking, research strategies, information literacy, and document. Students are expected to use critical reading and thinking strategies to write primarily expository and argumentative texts that respond to a variety of rhetorical situations and contexts and incorporate college-level research. The course includes a minimum of 6,000 words of formal writing (C-ID Descriptor for ENGLISH 100).

Evidence and Artifacts

All candidate equivalency documentation and information must be validated. Examples of validations may be an employer statement of experience or performance, external certifications or licensing, published papers or work products, industry-recognized credentials, exam scores, community service, plus any additional validation the local Equivalency Committee deems appropriate. The examples listed below are just a few samples and not a complete list.

Examples of Evidence Establishing Competency to General Education Area D.1.

**General
Equivalency
Examples**

- Artifact or work product demonstrating the ability to research a topic and compose a well-organized and grammatically correct document that includes appropriate integration and citation of external source information.
 - Artifact or work product documenting involvement in the analysis of a work process, including a main idea, supporting details, and a final conclusion as it relates to sector, industry, or civic-specific skills.
 - Artifact or work product documenting the investigation of a topic or issue, including the collection of evidence, as well as the supporting arguments of a final position as they relate to sector, industry, or civic-specific skills.
 - Publication of peer-reviewed article(s).
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Examples of Evidence Establishing Competency to General Education Area D.1.

Discipline-
Specific
Example:
Aviation

- A certified recreational, private, or commercial pilot must be fluent in English as the international language of aviation. Proficiency must be demonstrated in reading, writing, and speech.

Reference: Federal Aviation Regulation (FAR) 61.185(2) The aeronautical knowledge areas for a recreational, private, and commercial pilot certificate applicable to the aircraft industry for which flight instructor privileges are sought.

Discipline-
Specific
Example:
**Automotive
Technician**

- A licensed automotive technician must effectively translate results of a vehicle diagnosis into written form to either the service advisor or customer in such a way that a layperson can understand the diagnosis and repair of the vehicle (English Composition).

- A licensed automotive technician must effectively research repair manuals, databases, and other sources to locate necessary information to understand problems and to propose and perform necessary repairs.

Discipline-
Specific
Example:
**Barber,
Cosmetology**

- A licensed barber, cosmetologist, or esthetician may research and write papers or articles for consideration within industry periodicals or websites.

General Education Equivalency Examples

Area D.2. Language and Rationality: Communication and Analytical Thinking & Associate Degree Competency in Mathematics

Courses in language and rationality are those that develop for the student the principles and applications of language toward logical thought, clear and precise expression and critical evaluation of communication in whatever symbol system the student uses (Title 5 §55063 (b)(1)(D)). Such courses shall include Intermediate Algebra or another mathematics course at the same level, with the same rigor and with Elementary Algebra as a prerequisite.

D.2. Communication and Analytical Thinking. Courses fulfilling the communication and analytical thinking requirement include oral communication, mathematics, logic, statistics, computer languages and programming, and related disciplines.

- Students earning an associate degree must demonstrate competence in mathematics. Traditionally, this competence is demonstrated by obtaining a satisfactory grade in a mathematics course at the level of the course typically known as Intermediate Algebra (either Intermediate Algebra or another mathematics course at the same level, with the same rigor and with Elementary Algebra as a prerequisite, approved locally). Any other considerations must be equivalent.

- Satisfactory completion of a mathematics course at the level of Intermediate Algebra shall satisfy both this competency requirement and the Area D.2. coursework requirement (Title 5 §55063).

Purpose for Including One Course (3 units) in Language and Rationality for General Education

- For students to demonstrate competence in mathematics at a level equivalent to intermediate algebra.
- For students to develop oral communication and analytical thinking skills.
- For students to develop skills interpreting and assessing data and statistics to draw conclusions

Examples of Courses Included in Area D.2. Language and Rationality

MATH 110 Statistics

MATH 150 College Algebra for Liberal Arts

MATH 151 College Algebra for STEM (Science, Technology, Engineering, Mathematics)

Evidence and Artifacts

All candidate equivalency documentation and information must be validated. Examples of validations may be an employer statement of experience or performance, external certifications or licensing, published papers or work products, industry-recognized credentials, exam scores, community service, plus any additional validation the local Equivalency Committee deems appropriate. The examples listed below are just a few samples and not a complete list.

Examples of Evidence Establishing Competency to General Education Area D.2.

**General
Equivalency
Examples**

- Artifact or work product documenting logical thought in the identification of a work or civic challenge, development of specific solutions, implementation of solutions, and analysis of the outcomes and communication products of the project as they relate to sector, industry, or civic-specific skills.
- Artifact or work product documenting the investigation of a topic or issue, including the collection of evidence, as well as the supporting arguments of a final position as they relate to sector, industry, or civic-specific skills.
- Artifact or work product demonstrating mastery of oral communication skills as they relate to sector, industry, or civic-specific skills.

**Discipline-
Specific
Example:
Aviation**

•A certified flight instructor must receive instruction and complete an exam in the fundamentals of instruction, which includes the learning process, elements of effective teaching, student evaluation and testing, course development, lesson planning, and classroom training techniques.

Reference: Federal Aviation Regulation (FAR) 61.185(2) The aeronautical knowledge areas for a recreational, private, and commercial pilot certificate applicable to the aircraft industry for which flight instructor privileges are sought

Examples of Evidence Establishing Competency to General Education Area D.2.

Discipline-
Specific
Example:
**Automotive
Technology**

- A certified auto technician must demonstrate the ability to decipher information from the customer in either oral or written form regarding their vehicle complaint and use of the information to diagnose the vehicle problem causing the customer's concern and communication of findings either orally or in written form to the service advisor or customer.
- For a licensed automotive technician, every aspect of a job revolves around analytic thinking skills. Analytic thinking skills are used to confirm a customer's concern, perform root-cause diagnostic procedures, and verify the repair.
- A licensed automotive technician must use mathematical skills to manage and calculate ratios, measurements, comparisons, and specifications related to investigation of problems, development of appropriate repair solutions, and performance of repair. A licensed automotive technician may also apply mathematical skills and reasoning to machine parts and tools, to exacting specifications.

Discipline-
Specific
Example:
**Barber,
Cosmetology**

- A licensed barber, cosmetologist, or esthetician must utilize mathematical skills and reasoning to calculate proper product ratios or quantities for application on customers.