Courses for 3+1=2 Programs

Course	Couse Name	Course Subject
BIO 181	General Biology I	Biological concepts emphasizing principles and the interplay of structure and function at the molecular, cellular, and organismal levels. Intended for life sciences, biology, and health-related science majors.
BIO 182	General Biology II	Biological concepts emphasizing principles and the interplay of structure and function at the organismal, population, and community levels. Intended for life sciences, biology, and health-related science majors.
CHM 113	General Chemistry I	Principles of chemistry. Adapted to the needs of students in the physical, biological, and earth sciences.
CHM 114	General Chemistry for Engineers	Chemical principles with emphasis toward engineering. Students without high school chemistry or are chemical engineering majors must enroll in the CHM 113, 116 sequence instead of CHM 114.
CHM 116	General Chemistry II	Continuation of CHM 113. Equilibrium theory, thermodynamics, kinetics, electrochemistry, nuclear chemistry, descriptive chemistry.
CIS 105	Computer Appls & Info Technology	Introduces business information systems from a business intelligence perspective and the uses of application software with emphasis on database and spreadsheet packages for efficient and effective problem solving.
CSE 100	Principles of Programming with C++	Principles of problem solving using C++, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems concepts. Social and ethical responsibility.
CSE 110	Principles of Programming	Concepts of problem solving using an object-oriented programming language, algorithm design, structured programming, fundamental algorithms and techniques.

Courses for 3+1=2 Programs

Course	Couse Name	Course Subject
ECN 211	Macroeconomic Principles	Basic macroeconomic analysis. Economic institutions and factors determining income levels, price levels, and employment levels.
ECN 212	Microeconomic Principles	Basic microeconomic analysis. Theory of exchange and production, including the theory of the firm.
ENG 101	First-Year Composition	Discovers, organizes and develops ideas in relation to the writer's purpose, subject and audience. Emphasizes modes of written discourse and effective use of rhetorical principles.
ENG 102	First-Year Composition	Critical reading and writing; emphasizes strategies of academic discourse. Research paper required.
ENG 105	Advanced First-Year Composition	Concentrated composition course for students with superior writing skills; intensive reading; research papers; logical and rhetorical effectiveness.
FSE 100	Introduction to Engineering	Introduces the engineering design process; working in engineering teams; the profession of engineering; engineering models, written and oral technical communication skills.
GLG 101	Introduction to Geology I (Physical)	Basic principles of geology, geochemistry, and geophysics. Rocks, minerals, weathering, earthquakes, mountain building, volcanoes, water, and glaciers. Students must complete both GLG 101 and GLG 103 to receive an SQ (general studies).
GLG 102	Introduction to Geology II (Historical)	Basic principles of applied geology and the use of these principles in the interpretation of geologic history. Both GLG 102 and 104 must be taken to secure SG General Studies credit.

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Course	Couse Name	Course Subject
GLG 103	Introduction to Geology I-Laboratory	3 hours lab, some field trips. Both GLG 101 and 103 must be taken to secure SQ General Studies credit.
GLG 104	Introduction to Geology II-Laboratory	Lab techniques involving map interpretation, cross sections, and fossils. Both GLG 102 and 104 must be taken to secure SG general Studies credit.
GLG 110	Dangerous World	Geological studies as they apply to interactions between humans and Earth. Includes geological processes and hazards, resources, and global change. Both GLG 110 and 111 must be taken to secure SG General Studies credit.
GLG 111	Dangerous World Laboratory	Basic geological processes and concepts. Emphasizes geology-related environmental problems concerning Arizona. Both GLG 110 and 111 must be taken to secure SG General Studies credit.
HU	Humanities	The study of the humanities and the disciplines of art and design deepen awareness of the complexities of the human condition and its diverse histories and cultures. Courses in the humanities are devoted to the productions of human thought and imagination, particularly in philosophical, historical, religious and artistic traditions. Courses with an emphasis in arts and design comprise the study of aesthetic experiences and the processes of artistic creation. They may also feature a design emphasis in which material culture is studied as a product of human thought and imagination.
MAT 170	Precalculus	Intensive preparation for calculus. Topics include functions (including trigonometric), vectors and complex numbers.

Courses for 3+1=2 Programs

Course	Couse Name	Course Subject
MAT 265	Calculus for Engineers I	Limits and continuity, differential calculus of functions of one variable, introduction to integration.
MAT 266	Calculus for Engineers II	Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, Taylor series.
MAT 270	Calculus w/ Analytic Geometry I	Real numbers, limits and continuity, and differential and integral calculus of functions of 1 variable.
MAT 271	Calculus w/ Analytic Geometry II	Methods of integration; applies calculus, elements of analytic geometry, improper integrals, sequences and series.
PHY 111	General Physics	Noncalculus treatment of the principles of physics for nonphysics majors. Students whose curricula require a lab course must also register for PHY 113. Both PHY 111 and PHY 113 must be taken to secure SQ General Studies credit.
PHY 113	General Physics Laboratory	Elementary experiments in physics. Requires outside preparation for experiments and report writing. May be taken concurrently with, or subsequent to PHY 111. Both PHY 111 and PHY 113 must be taken to secure SQ General Studies credit.
PHY 121	University Physics I: Mechanics	Kinematics; Newton's laws; work, energy, momentum, conservation laws; dynamics of particles, solids, and fluids. Both PHY 121 and PHY 122 must be taken to secure SQ General Studies credit.
PHY 122	University Physics Laboratory I	Lab accompanying PHY 121. Both PHY 121 and PHY 122 must be taken to secure SQ General Studies credit.

Courses for 3+1=2 Programs

Course	Couse Name	Course Subject
PHY 131	**University Physics II: Electricity and Magnetism**	Electric charge and current, electric and magnetic fields in vacuum and in materials, and induction. AC circuits, displacement current, and electromagnetic waves. Both PHY 131 and PHY 132 must be taken to secure SQ General Studies credit.
PHY 132	**University Physics Laboratory II**	Lab accompanying PHY 131. Both PHY 131 and PHY 132 must be taken to secure SQ General Studies credit.
PSY 101	**Introduction to Psychology**	Major areas of theory and research in psychology. Requires participation in department-sponsored research or an educationally equivalent alternative activity.
SB	**Social Behavior**	The social-behavioral sciences provide scientific methods of inquiry and empirical knowledge about human behavior, within society and individually. The forms of study may be cultural, economic, geographic, historical, linguistic, political, psychological or social. The courses in this area address the challenge of understanding the diverse natures of individuals and cultural groups who live together in a world of diminishing economic, linguistic, military, political and social distance.

Courses for 3+1=2 Programs

Course	Couse Name	Course Subject
SG	Natural Sciences: General	Natural science areas of study include anthropology, astronomy, biology, biochemistry, chemistry, experimental psychology, geology, microbiology, physical geography, physics and plant biology. Knowledge of the methods of scientific inquiry and mastery of basic scientific principles and concepts are stressed, specifically in those that relate to matter and energy in living and nonliving systems. These laboratory courses cover aspects of scientific inquiry that lend themselves to more qualitative or descriptive discussions of science.
SQ	Natural Sciences: Quantitative	Natural science areas of study include anthropology, astronomy, biology, biochemistry, chemistry, experimental psychology, geology, microbiology, physical geography, physics and plant biology. Knowledge of the methods of scientific inquiry and mastery of basic scientific principles and concepts are stressed, specifically in those that relate to matter and energy in living and nonliving systems. These laboratory courses include a substantial introduction to the fundamental behavior of matter and energy in physical and biological systems.