

ACADEMY COURSE DESCRIPTIONS

3114 Academy English 1-2: This course is designed to encourage students to appreciate a variety of literature (prose, poetry, drama) and authors. Students continue to build their vocabulary skills through SAT vocabulary and learn to apply their knowledge in their writing. Writing skills are developed with an emphasis on the development of a clear, concise thesis statement leading to a thoughtful essay. Critical thinking is an integral component to the class discussions, essays, and creative presentations of works studied.

3124 Academy English 3-4: This course targets an in-depth analysis of various types of literature through psychology and criticism. Students are introduced to a variety of authors and specialists while working to master a mature style of writing. Through a clear focus on individuality, students are enabled to develop and define a personal niche in the realms of think and imagination. Students also develop their ACT and SAT test taking skills by in-depth practice for the PSAT.

3134 Academy AP English 5-6: Prerequisite: Academy standing or approval of instructor. Junior Academy Advanced Placement English combines enough skill-building and practice to help the student to score successfully in the spring on the Language and Composition Examination with the Academy emphasis upon both the acceleration and enrichment suitable for the gifted student. The literature spans as many genres, as many historical periods, as many philosophies, as many cultures possible within the academic time limitations. Assessments vary among shorter and longer written analytical arguments, group teaching of the class, reading quizzes, and creative visual presentations. Emphasis falls upon the determinants of good writing, namely conscious control of sentence structure, logical organizational flow, skillful enunciation of thesis position, and assemblage of rational, concrete proof for the argumentative stance. Written assignments strive to be open-ended, allowing each student to locate his own meaningful stance regarding each literary work. The course introduces the views of reality held by other cultures in contrast with the Western hegemonic position. All positions are subjected to equally close scrutiny.

3144 Academy AP English 7-8: Prerequisite: AP English 5-6

Senior Academy Advanced Placement English leads the student through a conceptual recapitulation of his or her evolution through distinct stages of linguistic awareness in his or her past while it concomitantly broadens and deepens skills in close reading of demanding works of prose and poetry and in written responses to such works from personal, creative, and critical perspectives. The students individually research and collectively assemble a class text of over thirty separate critical methodologies applicable to any text in need of interpretation and understanding. The literary offerings allow for class choice in addition to certain set pieces. A breadth of historical periods, genres, and individual authors of past and contemporary merit are grounded in enriched

supplementation from current related fields, such as fractal geometry, particle physics, anthropology, psychology, philosophy, history, linguistic studies... Assessments are varied and open-ended, ranging from individual creative response to the more structured writing and close reading demanded of the English Literature and Composition test given by the Advanced Placement division of the College Board in the spring.

3147 Creative Writing: (Semester only) . **Prerequisite:** C or better in sophomore/junior Academy English or consent of instructor. Creative writing seeks to move beyond using language as merely a tool of communication; rather, students will learn to use language as an instrument to express their unique and individual voices. This semester-long elective course is designed for students who love reading and have an interest in writing poetry and short fiction. In the writers' workshop format, the teacher assumes the role of a facilitator as the class works together to form a community of readers and writers. As we read published poems and short stories, we'll work on exercises to stimulate creativity. We'll focus first on playing with language and breaking down barriers to writing. Once we've learned to silence our internal censors, we'll work on finding our own voices and sharing them with others. Because writing is a process of revision, we'll learn how to critique others' work and accept critiques of our own work. In so doing, we become not only more critical writers, but also more critical readers

3148 Speech Communication: (Semester only) **Prerequisite:** C or better in sophomore/junior Academy English or consent of instructor. This course is designed to provide students with the valuable tool of successful oral expression. Not only does the possession of this skill provide the student with an improved means of communication that will be useful in both professional and personal lives, but also in developing the confidence that will enable the student to present himself successfully. Students will develop listening skills as well as speaking skills in the area of impromptu, informational, persuasive, demonstration speeches and oral interpretation.

3149 Academy Latin for English Power: **Prerequisite:** Grade 11-12. Latin for English Power is a language course under the aegis of the English Department, open first to Academy, honors and traditional juniors and seniors, then to underclassmen. It is designed for all who wish to strengthen and solidify their command of English vocabulary, grammar and spelling. One and one half years of content are telescoped into one year so that the full range of Latin grammar can be laid before the students, all the way through uses of the subjunctive mood of the verb.

3690 Academy Advisory: (Not available for 2004-2005) This course exists as a pass/fail credit class of no homework fitted each year to the particular scholastic difficulties of incoming freshmen. The course exists as a support to allow freshmen to achieve greater success in the core curricular classes. The class will focus on

strengthening basic algebra skills and developing logical critical thinking skills to enhance written and oral communication.

3372 Academy AP Economics: This college preparatory economics course emphasizes a macroeconomics approach, which gives students a thorough understanding of the principles of economics that apply to an economic system as a whole. The study includes national incomes and price determinations along with money and banking, public finance, and international economics. Students are also encouraged to participate in a national stock market game which enhances their understanding of an integral component of an economic system. Students will prepare for the AP exam.

3362 Academy AP Government: This college preparatory government course includes the study of the development of the Constitution, the legislative, executive, and judicial branches of government, and court cases involving the Bill of Rights. Students will prepare for the AP exam.

3376 Academy AP Microeconomics: (Semester only) The purpose of a course in micro economics is to give students a thorough understanding of the principles of economics that applies to the functions of individual decision maker, both consumers and producers. It places primary emphasis on the nature and function of product markets, and includes the study of factor markets and the role of government.

3310 Academy World History: This is an introductory course in World History for freshmen that emphasizes historical methodology, critical thinking, and development of writing skills. In such a panoramic course, students will be introduced to the study of anthropology and archeology, then move to the ancient world where through primary documents we attempt to understand our roots. The course also attempts to examine the historical trends and key personalities around the world throughout the medieval and modern eras. Students are engaged in multiple levels of learning and research as they investigate the historical dimensions of humankind.

3379 Academy AP World History: Prerequisites: Grade level 11-12, World History. This purpose of this course is to examine more carefully a variety of themes that collectively describe the human experience. Designed along six major themes: types of interactions among major societies, change and continuity over historical periods, technology and demography on people and environment, social structures and gender, cultural and intellectual developments, and functions and structures of states. These themes serve as the unifying thread that will allow students to examine World History from 1000 C.E. to today. The course is designed to be 70% non-Western in its historical content and prepares students to take the AP examination in May.

3321 Academy AP U.S. History: An inquiry approach to history continues in this year long course. Emphasis is on American history from the Colonial Period to the present.

The class prepares students for intermediate and advanced college courses plus the AP exam by making demands upon them equivalent to those made by full-year introductory college courses. Students will assess historical materials – their relevance to a given interpretive problem, their reliability, and their importance – and to weigh the evidence and interpretations presented in historical scholarship.

3300 Academy AP European History: This is a college level introductory course into modern European history that examines the major events, trends, and chronology from 1450 to the present. Students will examine themes in history and interrelated categories (political, diplomatic, intellectual, cultural, social and economic) as they investigate, using primary and secondary sources, the elites with the experiences of ordinary people. Students that complete this course satisfactorily are recommended to take the advanced placement exam to receive college credit.

Academy AP Psychology:

3526 Academy Biology 1-2: Academy biology uses a molecular approach to investigate living things. Students gain an understanding of the chemistry of cells, relationships between structure and function, and the patterns of inheritance in all living things. Mendelian genetics and population genetics are used to explore the evolution of species. Investigation of genetic engineering provides an understanding of DNA sequencing, DNA testing, recombinant DNA, and genetically altered crops and products.

3538 Academy AP Biology 3-4: . Prerequisite: Biology 1-2 The advanced placement biology course prepares students to take the AP exam in the spring semester. Students scoring 5, 4, or 3 on the exam earn college credit in biology and are placed in advanced classes upon entering college. The course focuses on the relationship between structure and function in living things, organisms and the environment, and the morphology and physiology of plant and animal phyla. Students will be encouraged to take the AP exam

3535 Academy Anatomy & Physiology 1-2: Prerequisite: Successful completion of Biology 1-2, Chemistry 1-2, or Chem Com 1-2. This is a one-year course focusing on the structure and function of the human body. Topics include interrelationship of tissues, systems, and metabolic relationship to structure and physiology of the body. Students will do original research in cardiovascular system. This is a college preparatory laboratory course designed especially for students interested in medical careers.

3560 Academy Chemistry 1-2: Academy chemistry is a one-year college prep class. The building blocks of all matter are studied. The presentation follows modern atomic theory. The periodic table is used to help simplify the study of elements by grouping those that have common reactions. Writing formulas for compounds, writing equations for reactions, and working out stoichiometric relationships using the equations are all

components of the course. The study of energy changes includes those for phase changes, chemical reactions, and nuclear reactions. These advanced sections deal with acid-base reactions, equilibrium, and reaction rates. Deductive and inductive reasoning, problem solving methods, and higher levels of thought are all used extensively in this study. Laboratory experiences reinforce concepts and stress laboratory safety, accurate measurement and accepted laboratory procedures.

3565 Academy AP Chemistry 3-4: Prerequisite: Academy Biology and Academy Chemistry or Biology 1-2 and Chemistry 1-2.. AP Chemistry is a one-year college chemistry lecture class. The presentation follows modern quantum mechanical theory. Writing formulas for compounds, writing equations for reactions, and working our stoichiometric relationships using the equations are all part of the course. The study of thermodynamic changes includes enthalpy changes, entropy changes, and Gibbs free energy changes. The advanced sections deal with acid-base reactions, equilibrium, reactions kinetics, coordination compounds, and oxidation-reduction reactions. This class will give each student the opportunity to gain the knowledge and skill to do well in their freshman college chemistry course with less effort than normally required. The student can also learn what is needed to be successful on the advanced placement test.

3585 Academy Physics 1-2: : Prerequisites: Chemistry 1-2, Algebra 1-2 and Geometry 1-2 This is a problem solving, critical thinking skills driven on year college preparatory course. Skill in the use of a scientific calculator is necessary. Topics covered include kinematics, dynamic wave theory, sound, optics, electricity, magnetism, and thermodynamics. Laboratory work stresses experimental design, an inquiry approach, and the scientific process.

3590 Academy AP Physics 3-4: Prerequisites: Chemistry 1-2 and Physics 1-2. This is a rigorous, one-year, calculus based physics course designed by the College Board. Two major topics, Mechanics and Electricity and Magnetism, are covered. The necessary calculus will be taught on a “need to know” basis. Upon completion of this course, students may take the Mechanics and/or the Electricity and Magnetism Advanced Placement Proficiency Exams with the potential of receiving up to 10 hours of college credits.

3440 Academy Algebra 1-2: This course presents the fundamental concepts of algebra. Topics included are integers, signed numbers, algebraic expression, radicals, first and second degree equations, inequalities, polynomials, factoring, functions, graphing, and system of equations. This course addresses the needs of the gifted students through problem solving strategies used in real life application problems that enhance the understanding of the algebraic concepts. Successful completion of this course will prepare the students for the challenges of the Academy geometry course.

3475 Academy College Algebra 1-2: Prerequisite: C or better in Algebra 1-2.

This course is designed for students who have demonstrated success in Algebra 1-2. The course develops the concept of functions and its graph, inverse functions, exponential functions, and systems of linear equations as well as the matrix methods to solve those systems. In addition, sequences and series, the binomial theorem, and mathematical induction will be included to increase the problem solving capabilities of the academically gifted student. Graphing calculators will also be incorporated into classroom instruction to prepare the students for ACT/SAT exams.

3540 Academy Geometry 1-2: Prerequisite: C or better in Algebra 1-2

This is a college preparatory course with emphasis on proof. Topics include all traditional geometry components.

3480 Academy Trigonometry: (Semester only) Prerequisite: Geometry, C or better in College Algebra .This is a college preparatory course with emphasis on the 6 trigonometric functions. Trigonometry includes verification of identities, graphing the 6 trigonometric functions and their inverses, solving trigonometric equations, the law of sines and cosines and DeMoivre's Theorem. Applications of the topics are included.

3485 Academy Analytic Geometry: (Semester only) Prerequisite: C or better in Trigonometry. This is a college preparatory course with emphasis on conics (rotation and translation) and vectors in 3-space. Other topics include logarithm and exponential functions and polar coordinates.

3490 Academy AP JAVA Programming 1-2:Prerequisite: Academy Geometry 1-2 or currently enrolled in Academy Geometry 1-2. Strongly recommended: Computer Programming 1-2. Lab fee required. Designed as a second year course for students with a computer technologies career goal. Can be taken as a first year course in computer programming in Java. Topics include: class design objects, control structures, file streams, and applets/HTML. Terminal and GUI input methods students for college courses in computer science and engineering. Students will be encouraged to take the AP Java Programming test..

3495 Academy AP Calculus 1-2: . Prerequisite: Trig, Analytic Geometry, or Pre-calculus. This is an advanced placement course in calculus. Topics included are functions, limits, continuity, derivations, applications of the derivative, integrals, exponential and logarithmic functions, inverse functions, applications of the definite integral, techniques of integration and infinite series. If time permits, parametric and polar equations will be included; otherwise, this can be covered in AP Calculus 3. At the end of the course, students will be encouraged to take the AP Calculus exam. One semester of credit (5 semester hours) from Rock Valley College is available for successful completion of this course

3498 Academy AP Calculus 3-4: . **Prerequisite:** Calculus 1-2 with grade of C or better and consent of instructor. This course is an advanced placement in the second year of calculus. Topics included are parametric and polar equations, analytic geometry of three dimensions, vectors, partial derivatives, multiple integrals, vector calculus, and differential equations. Two semesters of credit (8 semester hours) from Rock Valley College is available for successful completion of this course. Note: If Calculus 1-2 and Calculus 3-4 are successfully completed, the student can receive a total of 13 semester hours from Rock Valley College.

AP Statistical Concepts: Prerequisite: Academy Algebra, Academy Geometry and Academy College Algebra or Algebra 1-2, Honors Geometry and College Algebra. Statistical concepts is a full year course in elementary statistics intended for students interested in life science, nursing, social science, or statistics. Students will master the fundamental skills of statistics such as: interpreting data, applying probability, calculating sample distributions, and testing hypotheses.

3687 Academy Senior Seminar: (Not available for 2004-2005) This elective course is designed to give Academy students university-level experience in independent study, primary and secondary research, seminars on a variety of research-related topics, and the development and presentation of an original document. The Senior Seminar follows the dissertation process.

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