### Professional Studies (PRO)

**PRO 101 - INTRO COLLEGE ACADEMY**  
Semester Hours: 3  
Focus is on learning theory, discovering learning style preferences and appropriate, effective study methods, understanding the issues facing college students today and strategies to overcome them, learning about available campus academic and student support resources and how to utilize them improving oral and written communication skills. Identifying UAH academic organizations and recognizing the importance of involvement and developing the skills. Must be part of College Academy. May not be used for Charger Foundations.

**PRO 280 - PRIVATE PILOT GROUND SCHOOL**  
Semester Hours: 3  
Prepares student for FAA Private Pilot written examination. Provides student with necessary knowledge to progress into primary pilot flight training. A kit for approximately $150 must be purchased.

**PRO 301 - THRY & PRAC ADULT LEARNING**  
Semester Hours: 3  
This course presents an overview of five foundational learning theories and related research in adult education and development. The conceptual framework is centered on discovering what motivates the adult learner and the impact social perspectives have on adult learning through analysis and discussion. Students will define competencies needed for success in academic study and professional leadership, in setting educational goals, and in planning a learning experience to achieve them. Emphasis is placed on issues unique to adult re-entry students and the university services available to support nontraditional students.

**PRO 310 - ACADEMIC WRITING PROFESS STUDI**  
Semester Hours: 3  
Students will learn academic writing skills by engaging in the process of academic inquiry and argument. The course will cover a broad perspective of writing by exploring various writing and research styles used through different academic professions. Prerequisites: EH 102 or EH 105.

**PRO 315 - ENGINEERING COMMUNICATION**  
Semester Hours: 3  
Students will learn to communicate professionally in an engineering/technical environment. Students will develop written communications such as letters, memos, reports and proposals, create clear process descriptions and instructions, and deliver persuasive and effective oral presentations. Prerequisite: EH 102 or EH 103 or EH 105.

**PRO 320 - INDS PERSPECT & CRITICAL THNKG**  
Semester Hours: 3  
Interdisciplinary studies fosters foundational knowledge acquisition by which individuals draw on multiple disciplinary perspectives and integrate their insights and modes of thinking to advance the studies and the fundamental development of critical and analytical thinking skills. Complex issues are addressed from multi-faceted perspectives that stimulate problem solving, problem defining and problem posing. Emphasis is placed on how to synthesize evidence drawn from multiple sources as a basis for informed decision-making.

**PRO 321 - MEDIA LITERACY**  
Semester Hours: 3  
Investigate the interdisciplinary nature of 21st-century media. Students analyze the combined influence of production methods, semiotics, politics, ethics, and psychology on our critical understanding of advertising, propaganda, conspiracy theories, social media, and the Internet of Things. Prerequisite: EH 102.

**PRO 322 - TECHNOLOGY, SCIENCE & SOCIETY**  
Semester Hours: 3  
Apply critical thinking and conceptual tools to understand implications of technology and science on society by examining scientific facts, social impacts or new technology, and benefits and risks of rapid changes through an interdisciplinary theoretical framework. Prerequisite: EH 102.

**PRO 325 - INDS RESEARCH & APPLICATIONS**  
Semester Hours: 3  
Interdisciplinary research is a contemporary decision-making process for transcending the scope of a single discipline or program to develop insights that offer bold advances in knowledge, solutions to urgent societal problems, an edge in technological innovations, and a more integrative knowledge of multidisciplinary theories and concepts. This course introduces the primary drivers for interdisciplinary research and examines the interdisciplinary research process. Students will apply an integrated model for conducting research that draws on multiple disciplines. Prerequisites: PRO 310 and PRO 320.
PRO 331 - ENGINEERING TECH FNDNS I
Semester Hours: 3
An introduction to the Engineering Technology profession, resources and skills. Students will learn about engineering design, communication, professional ethics, and basic principles and physical laws used to understand and solve engineering related problems. Prerequisites: MA 113 or higher, EH 102 or EH 105 and PH 102 or higher.

PRO 332 - ENGINEERING TECH FNDNS II
Semester Hours: 3
A follow-on to PRO 331, the course introduces the Engineering Technology profession, resources and skills. Students will learn about computational engineering tools, graphical communication, characteristics of materials, in addition to the mathematical and statistical methods used to understand and solve engineering-related problems. Co-requisite: PRO 331 (Grade of C- or better).

PRO 333 - COMPUTER-AIDED DESIGN
Semester Hours: 3
An introduction to Computer-Aided Design (CAD) using Creo Parametric. Covers basic concepts of 3D modeling techniques and frequently used commands required to advance from a novice to an intermediate user level of Creo Parametric. Prerequisite: PRO 332 (grade of C- or better), or special permission. MAE 211 accepted as a substitute. PRO 333 does not substitute for MAE 211.

PRO 334 - PRINCIPLES OF STATICS
Semester Hours: 3
Develop an undertaking of the principles of statics. Topics include resultant and equilibrium of noncurrent and concurrent forces, force analysis of structures and machines, force systems in space, friction, centers of gravity, centroids, and movement of inertia of areas. Prerequisites: PRO 332, MA 171, ENG 101 or equivalent and PH 101. PRO 334 can not be used as a substitute for MAE/CE 271.

PRO 335 - STRENGTH OF MATERIALS
Semester Hours: 3
Comprehend and compare the behavior of solid objects subjected to various stresses and strains. Topics include stress and strain for axial loads, shear stresses and strains in torsion members, bending and deflection of beams, combined stress using Mohr's circle columns, and structural connections. Prerequisite: PRO 334 or MAE 271 or CE 271 (all with grades of C- or better).

PRO 336 - PRINCIPLES OF DYNAMICS
Semester Hours: 3
Learn the principles of Dynamics based on two broad areas of study, Kinematics and Kinetics. Kinematics is the study of the geometry of motion. Kinetics is the study of the relation between the forces acting on a body, the mass of the body, and the motion of the body. Prerequisite: PRO 334 or MAE 271 or CE 271 (all with grades of C- or better).

PRO 341 - ELECTRICAL CIRCUITS & SYSTEMS
Semester Hours: 3
This course introduces the major topics related to electrical circuits and systems and demonstrates how electrical engineering concepts are applied in other fields and everyday products. Topics include basic circuit analysis, digital systems, electronic devices and circuits, and electromechanics. Prerequisites: PRO 332 (grade of C- or better), MA 171, PH 102, ENG 101 or equivalent, MSC 287 or equivalent.

PRO 398 - SPEC TOPICS: INTERDISC STUDIES
Semester Hours: 3
Course uses an interdisciplinary approach to draw on intersecting and divergent knowledge from a variety of scholarly disciplines in order to create an in-depth and multi-faceted understanding of a particular instructor chosen issue, topic or problem. Prerequisite: EH 102.

PRO 399 - INDEP STUDY: INTERDISC STUDIES
Semester Hours: 3
Course allows individual students to pursue an interdisciplinary topic of interest which is not otherwise available and may involve any combination of readings assignments, tutorials, lectures, papers, presentations, or field/laboratory study (determined in consultation with instructor). Prerequisite: PRO 325.

PRO 431 - FUNDAMENTALS OF MANUFACTURING
Semester Hours: 3
This course introduces the fundamentals of manufacturing, examining the selection and use of various materials, processes, and systems. Prerequisites: (PRO 333 or MAE 201) and (PRO 341 or EE 213) and (PRO 335 or MAE 370 or CE 370).
PRO 433 - INSTRUMENTATION & MEASUREMENT  
Semester Hours: 3  
This course introduces valuable topics that an engineering technologist needs to master in order to design measurement and instrumentation systems. Topic areas include the essential general characteristics of instruments, electrical measurement systems, and computerized data acquisition systems. Prerequisites: (PRO 335 or CE 270 or MAE 370) and (PRO 341 or EE 213).

PRO 498 - INQUIRY AND LEARNING  
Semester Hours: 3  
Inquiry-based learning accelerates understanding, fosters critical thinking skills, and facilitates self-direction and discovery. Using this method, students will identify an interdisciplinary problem related to their approved concentration area, perform the foundational research, and formulate a research proposal. This is the first of a two-semester progression to complete a Capstone research thesis/project in PRO 499. Prerequisite: PRO 325.

PRO 499 - CAPSTONE EXP: RSCH THESIS/PROJ  
Semester Hours: 3  
Students majoring in Professional Studies are required to complete a senior research thesis in their approved interdisciplinary concentration. This Capstone course requires the student to demonstrate his/her ability to integrate the core knowledge and skills gained in their interdisciplinary areas of study using inquiry-based learning methods. Research is conducted and a thesis-style paper is written and orally presented. Prerequisite: PRO 498 with minimum grade of C-.