UNIVERSITY OF
ST. THOMAS

Catalog of AAS General Studies Electives

The following three sections list available elective courses in Technology, General Business, and Drug & Alcohol Counseling

UST Technology courses are offered in:

Software
Computer Science
Cyber Security
Electronic Technology
Engineering
Networking

Software

ASFT 1300: Foundations of Programming

This course lays the foundation of programming logic using flowcharts and pseudocode. It develops understanding of logic and algorithms in programming. The focus is on developing programming skills and knowledge by implementing conditional statements, loops, and functions.

ASFT 1305: Working with Databases

This course discusses fundamentals of database design and relational databases. It also explains normalizing a database. Student implement relational database concepts by

developing a database and running SQL queries. The course includes concepts to implement a database design and secure data in the database.

Computer Science

GCSE 1351: Introduction to Enterprise Cybersecurity

This course will take an enterprise level holistic perspective of cybersecurity. The purpose is to explore the emerging threat landscape and the means through which organizations both private and public develop and employ various cybersecurity policies, procedures, and tactics in response. It will evaluate the various cybersecurity tools, structures, and protocols that serve as best practices within industry, by governments, and international organizations.

COMSC 1450: Introduction to Programming and Computer Science

Students will learn to analyze computational problems and develop solutions to them as algorithms. The algorithms will be implemented in Python, a modern programming language. Students will learn the fundamental principles of computer science, basic hardware and software components of a computer system, computational thinking, basic algorithms, and programming. Students will get hands-on experience in problem solving by designing, writing, testing and debugging Python programs.

COMSC 1451: Object Oriented Programming

Software is everywhere, including enterprise systems, mobile devices, avionics, sensors, and big data. This course focuses on Object Oriented Programming (Java) and its key concepts: object, classes, encapsulation, abstraction, polymorphism, and inheritance. In addition, topics

such as generics, interfaces, threads and events/listeners complement the software development process.

COMSC 2351: Data Structures

Continuation of COMSC 1351: Introduction to abstract data types, records, linked lists, stacks, queues and trees and graphs; recursion; analysis of algorithms; additional sorting and searching techniques. Prerequisites: COMSC 1351

Cyber Security

ACYB 2300: Risk Management and IT Security

This course explores the roles of risk management in ensuring the security of information systems. Areas of study include standards, policies, best practices, and compliance laws for risk management. The course discusses methods of assessing, analyzing, and managing risks. Further, it discusses how to create a business continuity plan, disaster recovery plan, and computer incident response team plan for a given scenario within an organization.

ACYB 2305: Network Communications Infrastructure and Technology

This course explores computer networking and telecommunications technologies. Students analyze the performance, management, and security challenges associated with network communications infrastructure through voice, data, and video applications.

ACYB 2350: Capstone Project

This course helps students to integrate and apply the knowledge acquired in the program to solve a comprehensive project. The course includes steps to design, manage, and implement

a capstone project that will enable analysis and problem-solving skills. The students get an opportunity to work in teams, and apply the concepts learned in resolving the given business problem.

Electronic Technology

AEEG 1300: AC Circuits

This course explains the attributes and functions of electronic systems and circuits. The course discusses AC circuits, frequency, electromagnetism, capacitance, transformers, and voltage. The course also exposes students to constructing, examining, and troubleshooting circuits.

AEEG 1301: DC Circuits

This course discusses DC circuits, measurement of voltage and resistance, analysis of various circuit configurations, and electromagnetics. The course exposes students to constructing, examining, and troubleshooting DC circuits.

AEEG 1305: Fundamentals of Digital Signals

This course discusses the differences between analog and digital signals, and the conversion between them. It discusses number systems, binary data, Boolean logic, Boolean equations, truth tables, logic gates, logic circuits, decoders, counters, flip-flops, and registers. The course also exposes students to drawing, simulating, and breadboarding basic combinational and sequential logic circuits.

AEEG 1310: Structure and Functions of Electronic Devices

This course discusses the structure and functions of a range of electronic devices, such as semiconductors, diodes, transistors, and amplifiers. The course also discusses bias circuits and switching applications. Further, the course provides students exercises on examining circuits and troubleshooting a power supply.

AEEG 1315: Introduction to Integrated Circuits

This course discusses the basic concepts of integrated circuits and compares them with discrete circuits. It explains the configurations and functions of operational amplifiers, timers, and voltage regulators. The course also provides students exercises on building, evaluating, and troubleshooting op-amp circuits.

AEEG 1350: Principles of Electronic Communication

This course discusses the concepts and principles of electronic communications. Topics covered include electromagnetic frequency, frequency bands, spectrum, modulation, antennas, digital data, transmission lines and loads, fiber optics, and government services. The course also provides students exercises on diagramming modern transmitter and receiver components, plotting impedances, and making line and load conversions.

AEEG 1360: Microcontrollers

This course covers the fundaments of computer programming using the C programming language. It exposes students to the creation, assembly, and programming, of microcontrollers and microprocessors. The course introduces students to contemporary microprocessor and microcontroller product applications and provides them an opportunity to perform exercises in planning, designing, implementing, and debugging microcontrollers.

AEEG 2305: PLC System

This course exposes students to the requirements for installing, interfacing, troubleshooting, and maintaining a PLC system. The course also covers components and operations of a PLC system, I/O addressing, PLC scan sequence, ladder schematics, sensors, actuators, controls, timers, counters, sequencers, shift registers, and data manipulation methods. During this course, students are also required to work on a PLC project.

AEEG 2310: Capstone Project

The final capstone project provides the students with an opportunity to apply the concepts learnt in previous courses while working on an electronics project. The project provides the students design experience, and requires them to practice problem solving, teamwork, documentation, presentation, and project management skills.

Engineering

ENGR 1100: Intro to Engineering Lab

This course, in combination with the Introduction to Engineering course ENGR 1300, is a first year course dedicated to the preparation of students for the future engineering curriculum. The lab component focuses on application of the mathematical principles via computer software (MATLAB and Excel).

ENGR 1102: Physics and Engineering Scholars Seminar

The Physics and Engineering Scholars seminar will enhance relevant concepts, techniques and problem-solving strategies needed in introductory Physics 1331 and Physics 2333 courses. The focus is on application of those concepts, techniques,and strategies to covered

lecture topics in both Physics 1331 and 2333, such as motion in several dimensions, forces, energy, momentum, rotational motion, vibrations, and waves. This course is recommended for students who need to improve their quantitative reasoning and problem-solving skills to succeed in their introductory physics classes. Departmental Approval is needed to sign up for this course. This is a Pass/Fail course.

ENGR 1300: Introduction to Engineering

This introductory course will expose students to the field of engineering and the mathematics required for engineering courses. The focus will be on the application of mathematics to solving real-world engineering problems without heavy emphasis on the derivation. Topics covered will include solving engineering problems through applications of basic algebraic manipulations, trigonometry, vectors, sinusoids and harmonic signals, matrices and systems of equations, basics of differentiation, basics of integration, and differential equations.

ENGR 1314: Fundamentals of Computer-Aided Design

This course provides the fundamentals of engineering graphics. It is a prerequisite for any upper level engineering design classes. It introduces students to AutoCAD basics and will cover topics such as orthographic projections, pictorial drawings, dimensioning, sectioning, and tolerancing. An introduction to assembly drawings, threads and fasteners will also be part of this course.

ENGR 2100: Introduction to Engineering Design

An introduction to the engineering design process. Students complete a semester long design project from the problem recognition and definition stage through the implementation and

testing phase. The project will require individual and group work, and is designed to provide students with the fundamentals of completing each step of the engineering design process.

ENGR 2105: Machining Technology

Introduction to common tools used in the machining and manufacturing of mechanical components. This course will focus on teaching the proper use, capabilities, and limitations of available tools and involve a hands-on project to create a machine component from raw materials.

ENGR 2302: Material and Energy Balances

This course covers the principles of mass and energy conservation and their application in process analysis and design. It includes topics such as stoichiometry, conservation of mass and energy, reaction stoichiometry, thermodynamic properties, and the use of process simulators to model and analyze chemical processes. Through problem-solving exercises, case studies, and design projects, students will learn how to apply their knowledge to analyze and design chemical processes in various industries.

ENGR 2410: Digital Design

Analysis and design of practical digital systems including combinational logic circuitry and finite state machine circuitry. Topics covered include logic gates, number systems, Boolean algebra, and synchronous sequential circuits, flip flops, memory devices and programmable logic.

Networking

ANET 1300: Hardware and Software Environment

The organization of a computer is examined in a typical operating systems environment. Terminology and underlying principles related to major computer functions are discussed in the context of hardware and software environments.

ANET 1305: Basics of Networking

This course explains the fundamentals of networking concepts. It focuses on technological advances made in the field of computer networks. It also covers impact OSI and TCP/IP model and how it relates to network communication. The course also details the importance of different protocols in a network and tools required to secure the network.

ANET 1350: Introduction to Servers I

This course offers students an introduction to server hardware and provides a baseline level of learning that can be leveraged should they be interested in taking the CompTIA Server+ Certification Exam.

ANET 1355: Physical Networks

This course explains how computer networks are created using physical components. Students get an opportunity to construct a physical network by using wires, network devices, network protocols, tools, and standards. The course also compares and contrasts different transmission media and network devices based on transmission rates.

ANET 1360: Introduction to Servers II

This course offers students and introduction to the Windows Server platform and provides a baseline level of learning that can be leveraged should they be interested in further learning or certification specific to Microsoft Windows Servers.

ANET 2300: Introduction to Linux Networking

This course introduces various features of the open source operating system, Linux. It starts with the fundamental commands of the operating system and covers installation and network configuration steps. The course also covers how to maintain and troubleshoot client and server network services.

ANET 2305: Securing Information

This course focuses on the importance of securing the IT infrastructure. It also covers ways that make the IT infrastructure vulnerable and steps that should be taken to secure it against malicious attacks. It introduces the role of security policy and implementation issues related to it. Students get an opportunity to audit, test, and monitor an IT system.

ANET 2350: Basics of IP Networking

This course is intensively focused on the study of TCP/IP protocol and OSI model. It covers key concepts related to IP Networking, subnetting, and troubleshooting. The course details concepts of IP routing, dynamic routing protocols, bridging, switching, and LAN/WAN technologies.

ANET 2355: Configuring Email and Web Services

This course focuses on configuring email and web services in the network. It also details procedures of how to configure a web server, secure a web server, install a Mail server, and secure a Mail server. Students get an opportunity to define roles and policies related to email and web services.

ANET 2360: Capstone Project

This course helps students to integrate and apply the knowledge acquired in the program to solve a comprehensive project. The course includes steps to design, manage, and implement a capstone project that will enable analysis and problem-solving skills. The students get an opportunity to work in teams, and apply the concepts learned in resolving the given business problem.

ANET 2365: Advanced Troubleshooting, Repair and Maintenance of Computers

This course studies PC hardware and software including physical devices, BIOS, operating systems, and applications. The course includes instruction on installation, configuration, troubleshooting, and repairing software and hardware implementations. It covers most concepts found in the CompTIA A+ certification exam.

ANET 2370: Advanced Networks

This course is a study of routers, switches, and other computer and telecommunication network devices. The course will include information on network and routing protocols, local and wide area networks, and VLANs as well as device configuration, management, and troubleshooting and will be exploring many of the concepts found in the Cisco Certified Entry Networking Technician (CCENT) certification exam.

ANET 2375: Advanced Operating Systems

This course is a study of server operating system including installation, configuration, management, core infrastructure services, policies and permissions, and virtualization. It covers many of the concepts needed for the Microsoft Certified Professional Installing and Configuring Windows Server 2012 certification exam.

General Business

GENB 1301: Principled Business

This core course guides first year students in discerning their passion through a business lens. It is designed so students will be able to make more solid plans to pursue their passion while discerning in what direction to take their life. They will learn how to find what they want out of life, what their strengths and weaknesses are, and how they can apply them to their career.

GENB 1305: Writing and Research

Students will learn and produce professional documents that reflect their ability to research, organize and present their ideas. Students will learn all the steps required to build a professional document as well as all of the techniques needed to produce such documents. This course is intended only for, and restricted to, students in the Associate of Applied Science in General Business program.

GENB 1312: Introduction to Business

This course provides a general overview of the major elements of business. It serves students new to the study of business by presenting the key functions within business. These functions include topics such as marketing, management, operations, finance, accounting, leadership, and the global marketplace. In addition, this course provides an introduction to ethical business practices. The concepts presented in this course help students to better understand how each piece of the business puzzle fits together as they take the classes required for an associate's degree in business.

GENB 1320: Business Communication

A practical, experienced–based introduction to business and professional communication using a career–and–self– assessment and case studies on ethics, leadership, and diversity. Self–led student teams design and present a final project with a focus on oral and written communication skills.

GENB 1331: Principles of Macroeconomics

This course concentrates on analysis of national income, with special attention to the role of monetary and fiscal policies in stabilizing the price level and fostering high levels of employment and rapid economic growth. Theoretical as well as policy implications of income and price determination models are explored.

GENB 1332: Principles of Microeconomics

A study of the functioning of the market system, with emphasis on consumer and business decision–making and the various market structures. The course covers the theoretical underpinnings as well as the policy implications of the market system, resource allocation and income distribution

GENB 1341: Principles of Accounting 1

An introduction to financial accounting with emphasis on basic concepts and principles. Several important concepts will be studied in detail, including revenue recognition, inventory, long–lived assets, present value, and long-term liabilities. The course emphasizes the construction of the basic financial accounting statements– the income statement, balance sheet, and cash flow statement.

GENB 1342: Principles of Accounting 2

An introduction to managerial accounting, with coverage of cost concepts, budgeting, cost–volume–profit analysis, and special management decisions. Managerial accounting is a company's internal language, and is used for decision–making, production management, product design, and pricing and for motivating and evaluating employees.

GENB 2320: Personal Finance

GENB 2330: Entrepreneurship & Conscious Capital

This course introduces students to the process of starting and growing a new business. In this course, students learn how to recognize business opportunities, develop feasibility analyses and business plans, seek financing and funding for the new business, and develop the main functions of the new business (i.e., marketing/sales, cash flow management, and human resources). The course also covers business growth strategies. The course content is augmented with real–world case studies and interactions with successful entrepreneurs.

GENB 2339: Introduction to Finance

This course provides an introduction to financial concepts and principles. Special attention is given to the role of the financial system in the economy, the fundamentals of investment analysis, and the financial decisions of business firms as related to capital budgeting, capital structure, and responsibility in the conduct of business financial operations.

GENB 2340: Leadership

This course introduces students to theories and practices of leadership, with foci in business organizations and the role of leadership in developing ethical organizations. Students study

the history of leadership theories, the role of leadership in organizational success, ethical leadership, and profiles of great leaders.

GENB 2343: Principles of Marketing

The course analyzes marketing strategy and product decisions, pricing policy, sales promotion and distribution in the business environment.

GENB 2347: Principles of Management

This course is centrally concerned with the theory and principles of organization and management with particular emphasis on the traditional management functions and the process of managerial roles performed in the workplace. Topics may include an introduction to strategic planning, ethics and social responsibility, decision making, motivating the workforce, managing teams, and other effective leadership skills. Applications include experiential learning and research, applied group dynamics, case analyses and exercises.

GENB 2348: Human Resource Management

A study of the fundamental concepts and techniques in the management of human resources, including job analysis, employee staffing, training, performance evaluation, compensation administration, and health/safety programs. The legal environment and ethical treatment of employees will be fundamental to each topic. Students will study current news and legislation in HR such as sexual harassment, expatriate (overseas) assignments, and alternative dispute resolution as topics arise in the press.

GENB 2353: Foundations of Personal Sales

Foundations of Professional Sales introduces students to the process of selling and the complex decision-making process. It covers theories and practices of communication and persuasion in the context of making a sale. It also introduces the concepts and practices involved in managing and motivating a sales force. Students review the communication and Persuasion building blocks, followed by the steps needed from planning to closing the sales cycle.

GENB 2355: Personal Selling

This course builds on the personal selling skills introduced in "Foundations of Professional Sales" (GENB 2353). Students learn principles of persuasion, the complex decision making models, and methods of personal selling. Students design sales pitches, engage in role play, and analyze cases to build experience in personal selling. This course is intended for, and restricted to students in the Associate of Applied Science in General Business program.

GENB 2357: International Business

This course provides an integrative overall business perspective (as opposed to a functional view) grounded in a global environment. This will include coverage of business as it is conducted in both developed and emerging economies. Focus will be on the globalization of business and critical factors for successfully entering into the global marketplace.

GENB 2358: Business Law

This course provides a general understanding of the American legal system and the concepts that impact the conduct of business. Disputes, business ethics, business and the US Constitution, contract law, sales contracts, labor and employment law, and other key

concepts are presented. A the end of this course the student will be able to understand the legal environment in which companies operate, both domestically and around the world.

GENB 2361: Social Media Marketing

This course introduces students to the processes necessary to run a social media marketing campaign. In this course, students will learn how to understand the components of a social media marketing campaign, types of applications and types of content used for social media marketing, and how to audit and plan social media marketing campaigns.

GENB 2362: Social Media Marketing Practicum

This course directs students to engage in action learning with a local business in need of social media marketing. Students will become Hootsuite certified and develop a social media marketing plan for a local business.

GENB 2363: Advertising and Promotion

This course introduces students to advertising and promotion. Students will learn about how to build an advertising proposal by following the story of an advertising firm. Students will learn fundamentals of advertising, how to develop an advertising plan, and how to measure success in an advertising campaign.

GENB 2397: Accounting Applications

This course provides students with a practical approach to accounting, with modules on accounting software such as Quickbooks and Sage, as well as data analytics tools such as Tableau. This course is only open to students in the GENB-AAS program.

Drug & Alcohol Counseling

DAAC 1300: Mental Health, Ethics, and Addiction

Students will obtain an overview of: abused substances and addictions; the addiction field, including treatment approaches and modalities; theoretical models applied to understanding abuse and addictions; trends in alcohol and other drug (AOD) use, abuse, addiction and treatment.

DAAC 1301: Introduction to Helping Professions

Students are exposed to the generic components of helping across various healthcare settings. This course enables students to examine in depth their personal fitness for pursuing a career as a professional helper. It also provides a background for specialized study in each specialization area.

DAAC 1305: Theory and Treatment

This course offers an introduction to addiction theories and treatment models and methods. Students will learn how to conduct assessment for and diagnosis of substance abuse and addiction disorders, the effects of substances and addictions on the client and others, etiology of substance use concerns, and best practices in counseling and treatment.

DAAC 1310: Individual Counseling Skills

This course will provide an introduction to the helping relationship, especially as it relates to counseling. Students will be challenged to consider their motivations, needs, and goals related to the art of helping. Students will engage in a community service learning project as

part of exploring the nature of the helping relationship. Students will also be introduced to basic attitudes, dispositions, and skills needed for helping relationships and counseling.

DAAC 1315: Multicultural Counseling

This course introduces students to the study of cultural patterns, including multiple dimensions of difference. Theories of multicultural counseling, identity development and social justice are addressed. The roles of counselors and other professional helpers in eliminating oppression and promoting the dignity of all persons are addressed.

DAAC 1319: Substance-Related and Addictive Disorders

Students learn about specific addictions and their respective treatment. Students also learn the causes and consequences of substance related and addictive disorders and the major drug classifications. Students will learn about both chemical and behavioral addictions.

DAAC 1320: Ethics in Addiction Counseling

This course provides an exploration of the legal, ethical and professional choices faced by mental health practitioners. Introduces the standards of ethical behavior in the addiction counseling field, with particular emphasis on client confidentiality and ethical decision-making.

DAAC 1325: Group and Family Counseling

This course provides counselors with an overview of the processes and theories involved with counseling groups and families. More specifically, the focus is on preparing students to think systemically and to learn about group and family concepts, dynamics, theories and techniques.

DAAC 1330: Documentation and Records

An introduction to clinical documentation and record-keeping. Specific attention will be paid to session and treatment plan documentation requirements of mental health professionals.

DAAC 1331: Professional Communication in Counseling

Students in this course will learn basic principles of professional writing and communication as it relates to the field of substance abuse counseling. Students will demonstrate knowledge of professional writing and speaking through experiential activities including evaluating and writing academic papers, implementation of APA principles, and using professional writing techniques to communicate effectively, and presentation.

DAAC 1342: Abnormal Behavior

Students explore and identify maladaptive behavior including characteristics, classifications, diagnoses, and treatment modalities. Topics include factors associated with defining and identifying abnormal behavior.

DAAC 2300: Neuroscience and Psychopath

This course will investigate a broad range of addictions including psychoactive substances (eg. alcohol, opioids, stimulants, etc.) and process addictions (eg. gambling, internet gaming). The complex biopsychosocial disease process of addiction will be investigated. There will be emphasis on the physiological brain responses and health consequences of substance use disorders. Students will learn how to apply the criteria for diagnosis of substance use disorders.

DAAC 2305: Advocacy and Social Justice

The focus of this course will be on the social reality of drug use and drug users within contemporary society. It will include a historical analysis of the social construction of drug use, drug users, abuse, and addiction. The content will also include an investigation of the complex relationships between individual and group behavior, and social structure. Central concepts such as social learning, labeling, power, and inequality, as well as socio-cultural definitions of drugs, behavior, and the people who use drugs will be used. Special attention will be given to the complex legal history surrounding drug use, the link between drugs and crime, the impact of the medicalization of human behavior, and varying perspectives.

DAAC 2310: Practicum

This course offers a practicum experience of 150 or more clock hours. The course engages the student in group supervision to accompany a clinical field placement. Written and oral presentations accompanied by audio and video recordings form the basis of the supervisory process.

DAAC 2315: Psychopharmacology & Assessment of Addiction

Students in this course will explore various types of substances abused, including psychological and physiological impact, tolerance, withdrawal, and drug interactions. Students will also explore diagnosis criteria for various addictions, including the assessment and screening available for addictions.

DAAC 2320: Crisis Intervention

An examination of diverse crisis situations and the assessment and treatment strategies used by counselors to assist individuals, groups and organizations manage and resolve those crises.

DAAC 2325: Advanced Practicum

This course offers a practicum experience of 150 or more clock hours. The course engages the student in group supervision to accompany a clinical field placement. Written and oral presentations accompanied by audio and video recordings form the basis of the supervisory process.

DAAC 2340: Social Work Internship

Students engage in a supervised field education experience of at least 150 hours in an approved agency appropriate to human service. Students integrate classroom knowledge, values, and ethics with practice, with the goal of increasing practical skills and promoting professional competence in the field of human service.