



## AMERICAN COLLEGE OF THESSALONIKI – SPRING I 2026 COURSE OFFERINGS\*

The American College of Thessaloniki plans to offer a wide array of courses from the Divisions of Business, Humanities & Social Sciences, and Technology & Science for the Spring I 2026 term. For those students in the Study Abroad Program, prerequisite requirements can be waived if comparable completed coursework at their home institution can be demonstrated.

\*Please note that ACT reserves the right to cancel a class due to low enrollment and will work to provide appropriate alternatives for those students impacted by any changes in course offerings.

### **DIVISION OF BUSINESS**

#### **Accounting 101: Financial Accounting**

*This course is designed to provide students with an understanding of accounting information and the environment in which it is developed and used. Accounting principles and procedures are discussed in order to provide an understanding of the financial accounting process, including the recording, summarizing, and reporting of business transactions, which result in the preparation of financial statements. Topics covered include accounting and the business environment, revenue and cost recognition, asset valuation, depreciation, and an introduction to financial statement analysis. (3 credits)*

#### **Accounting 102: Managerial Accounting**

*This course is designed to give insight into the interpretation and use of financial reports for management planning, coordination and control. Students will be exposed to the kind of accounting information needed, where this information can be obtained, and how this information can be used by managers as they carry out their planning, controlling, and decision-making responsibilities. Topics include management accounting vs. financial accounting, classification and behavior of costs, CVP analysis, segmented reporting, standard costing and responsibility accounting. (3 credits)*

#### **Art 123: Aircraft Design Principles**

*This course is designed in order to provide students with a basic understanding of the principles of aircraft design. The concepts and principles will cover designs of both military and civilian applications from 1903 to today. The course will provide a basic introduction of the principles of physics and aerodynamics relevant to aircraft design. Subsequently the core components of the course will include topics such as the classification of aircraft, the design principles behind each key element of aircraft such as wings, fuselage, propulsion, landing gear as well as topics relevant to construction material and techniques. The course will have a strong focus on lessons learned throughout history and evolution of aircraft with analysis of various case studies on successful and not-so-successful aircraft designs in both military and civilian applications. (3 credits)*

#### **Business Administration 398: Undergraduate Internship in Business**

*This course aims towards junior or senior students so as to offer them an opportunity to apply their so far gained academic knowledge. This internship is an academic course and credit is awarded due to learning not just for working. The course's main goal is to provide students with an opportunity to gain work experience that will enhance and complement their academic learning. The course requirements are designed to provide a structure that will enable students to make connections between what they learn in the classroom and on the job, to further develop analytical and interpersonal skills, and to practice business writing skills. (3 credits)*

#### **Economics 101: Introductory Macroeconomics**

*An introduction to modern economic analysis and its policy implications. The course centers on the applications of economic theory to national policy problems such as growth, inflation, unemployment, government expenditures and taxation, and the role of money. In addition, it provides a broad introduction to the understanding of the modern national socioeconomic systems in today's globalized economies. (3 credits)*



### **Economics 102: Introductory Microeconomics**

*A continuation of the introduction to modern economic analysis concentrating on the factors affecting behavior and decision making by households, business firms, and institutions operating under a mixed socioeconomic system. It also considers the issues of market failures and introduces basic concepts of international economics. (3 credits)*

### **Economics 332: International Economics**

*The goals and objectives of this course are to facilitate the students understanding of foreign trade flow issues including the causes, the volume and the direction of these flows. Strong emphasis is given to the formulation of industrial trade policies. Topics to be covered include various trade and exchange rate theories, tariffs, and commercial policy, factor movement, regional economic integration, international institutions, international macroeconomic interactions, and international environmental issues and policies. (3 credits)*

### **Finance 201: Financial Management**

*This course provides a comprehensive introduction to the field of financial management. Emphasis is given to the examination of the processes and the methodology of financial statement analysis that can be applied and used as guidelines in assessing, interpreting and planning financial data to meet the objectives of managing a business entity effectively. Topics covered include goals and functions of financial management, short-term financial management decisions, financial statement analysis, planning and financial forecasting, and time value of money. (3 credits)*

### **Finance 202: Entrepreneurial and Corporate Finance**

*This course will clearly focus on financing an existing family business, start-ups, corporations, and NGO's, including sound financial management practices. The course will go into depth on how to analyze financial statement, create financial forecasts, and evaluate the various ventures. Tools and methods used in determining how much money a venture actually needs in order to be viable will also be covered. Attention will be devoted to the different types of financing alternatives available to an entrepreneur. The venture capital market will be investigated in detail, including self-financing, debt financing, angel financing, and financing from venture capital firms. Students will be encouraged to understand financing issues and options from the vantage points of the entrepreneur, the lender, and the investor. In short, the course will explore the most important financial issues that an entrepreneur may face. (3 credits)*

### **Finance 220: Investment and Portfolio Management**

*The principal purpose of this course is to offer a comprehensive introduction to the characteristics and analyses of individual securities as well as the theory and practice of combining securities to form optimal portfolios. It provides an understanding of the general principles of financial and investment decision-making through an examination of asset pricing models and the efficient market hypotheses as well as treatment of interest rates, bond and stock pricing, and bond and stock fund management. (3 credits)*

### **Management 101: Introduction to Management**

*This course provides students with knowledge of basic management theories and concepts and introduces them to simple case studies relevant to the theoretical background that is covered. The subjects examined, including some insights from international management, are the following: the external and internal environment within which an organization operates; the historical foundations of Management; the social responsibility of business and the relation between business and government; the managerial function of planning; management by objectives; the organizing function and organizational structures; the function of staffing and personnel selection; the function of leading, motivation and job satisfaction, and finally, the function of controlling and coordinating a firm's actions to achieve its objectives. (3 credits)*

### **Management 201: Organizational Behavior**

*The behavior of individuals and groups within the organizational context is presented and analyzed. Different forms of organizational behavior are considered, providing students with exposure to various models. Topics covered include the context of organizational behavior, organizational culture, understanding individual behavior, personality-perception attitudes, job satisfaction, job stress, motivation and learning, interpersonal behavior and dynamics, leadership, power and politics. (3 credits)*



### **Management 219: International Business**

*The objective of this course is to present an overview of the global environment within which firms operate. Students are exposed to all aspects of international business and will learn how to interpret international developments and evaluate their consequences for the firm. Among the topics considered are the nature of the multinational corporation, the institutional framework for international business, environmental factors influencing the choice of international investment sites, factors related to business operations in specific countries/regions, and the special circumstances relating to the marketing and financing of international businesses. (3 credits)*

### **Management 302: Revenue Management**

*With a fixed capacity, a highly disposable product and high fixed costs, hotels are a natural candidate for the application of revenue management. The purpose of this course is to provide a core understanding of the fundamentals of revenue management, which ties into the larger picture of revenue strategy. The course is structured to provide an insightful look into Revenue Management. In today's hotel sector an increasingly complex network of traditional and web based channels have to be managed to insure hotel success. Key questions include: how should you distribute over the web? What should you include on your brand.com website so people book through it? How can you maximize the potential of online travel agents (OTAs)? With the distribution environment both highly complex and constantly evolving, this course will give you comprehensive foundation of current industry practices to help jumpstart your career in this fascinating domain. (3 credits)*

### **Management 305: HR in Hotel and Tourism**

*Hospitality is a concept deeply rooted into Greek mentality. Intuitive hospitality is offered by all tourism professionals and the country is renowned for this quality. Nevertheless, contemporary developments and cultural trends make it necessary for professionals to be educated according to today's needs. This course covers a wide range of topics that include advance hospitality management theory, impact of socio-economics and technology on hospitality, the future trends, laws relating to business ownership, current practices, legislation and ethics in hospitality practices, operations of revenue, logistics in accommodation for guests, guest handling, and various segments such room, concierge, food and beverage, pools, casinos, beach-bars and restaurants. (3 credits)*

### **Management 310: Human Resource Management**

*The course provides an overview of the basic concepts and practices of human resource management of a modern entrepreneurial organization. Its emphasis is on HRM's strategic perspective and well-being of the people for the success of new ventures. It also focuses on the global realities of HRM and the use of modern technologies within an ethical framework. Topics covered include, basic concepts, strategic HRM, legal aspects of HRM, Job analysis & Job Design, human resource planning, employee recruitment, selection, motivation and orientation, performance evaluation and compensation, Training and development, labour relations, safety, health and wellness, social and ethical issues. (3 credits)*

### **Management 322: Business Strategy I**

*The aim of this course is to enable students to approach the whole organization: marketing, finance, accounting and personnel functions together. Strategy and structure are the central themes of the course. Topics covered include the business environment, the systems approach, industry analysis, organizational intelligence, organizational structuring, organizational power, strategy development and implementation, leadership styles, management of the external environment, and strategic decision-making. (3 credits)*

### **Management 330: Entrepreneurship and Innovation**

*An in-depth study of the legal, financial, marketing and organizational aspects of starting up, implementing, and successfully managing one's own business venture. The major portion of the course, apart from presentation and discussion of theoretical bases involving starting a new business, consists of construction of a detailed business plan. Class members consider all issues involving initiation, building, and controlling a new venture. The main goal is first the analysis and secondly the simulation of an effective business plan based on realistic, contemporary case scenarios. (3 credits)*



### **Marketing 101: Introduction to Marketing**

*The objectives of this course are to introduce the basic marketing concepts, to present the practical use of marketing in modern corporations, to provide students with the elements of market thinking in solving business problems and to prepare them for working in the competitive and dynamic field of marketing. Topics covered include the macro and micro role of marketing, market segmentation, basic principles of marketing research, demographic and behavioral dimensions of consumers, marketing mix, product analysis, product strategies, new product development, distribution channels, pricing policies, introduction to promotion and advertising, and marketing plan construction. The course is enriched with supplementary up-to-date articles, real-world cases, video projections, and marketing simulation. (3 credits)*

### **Marketing 214: Advertising**

*The primary objective of this course is to introduce students to the challenging world of advertising and promotion. Advertising is examined as a distinctive element of promotion, together with other communication tools. Current developments of advertising are discussed and an integrative perspective is adopted, due to rapid changes and metamorphoses in the advertising business. Emphasis is given to the role of modern marketing communications, the organizational needs and structure in the field of advertising and promotion, determining advertising objectives and budget, creative strategy, media planning, analysis of broadcast and print media, types of support media and other promotional tools. The large number of advertising techniques and applications, as well as students' everyday exposure to thousands of communication messages, recommend the use of cases, projects, real-world examples and class discussions. (3 credits)*

### **Marketing 303: Tourism e-business**

*Advances in technology have greatly influenced and shaped modern tourism operations. IT systems offer flexible, online, and, above all, affordable, solutions for everyone, from single individuals to large companies. What is more important, online systems are used not only by industry professionals but by customers too; it is a given fact that a growing majority of tourists around the world use the internet to research, examine and select their next travel. As a result, it has become absolutely necessary that a professional of any position in tourism should be able to manage and run such platforms on a daily basis. There are hundreds of innovative and versatile platforms available for travel services, covering the needs of various segments, such as destination management companies, travel agencies, tour operators, hotels and hotel chains, tourist transfers and buses, excursions and package organizers etc. During this course participants will be introduced to the basic characteristics of various e-business concepts, as well as industry-specific software, such as hotel booking, airline reservations, events registrations, as well as operational software covering areas of accounting, HR, logistics and dining services. (3 credits)*

### **Marketing 318: Global Marketing**

*This course addresses marketing management problems, techniques and strategies needed to incorporate the marketing concept into today's global marketplace. More specifically the course deals with modes of foreign market entry, pricing issues, cultural and demographical issues and the impact of foreign currency fluctuations on a firm's performance. (3 credits)*

### **Marketing 320: Marketing Research**

*The major objective of this course is to introduce students to the useful and multi-purpose theory and practice of marketing research. Application of this theory to product, price, place and promotion strategies, as well as to every practical marketing issue confronting a business organization, is one of the main course goals. Topics that are discussed in detail include the role and the environment of marketing research, planning a research project, secondary sources of information, qualitative interviewing methods, survey-interviewing methods, the basics of sampling, major sampling techniques, questionnaire construction, data-processing, analysis and tabulation, and reporting research findings. All topics are dealt with through examples in the context of real business situations. (3 credits)*

### **Research 299: Research Methods**

*This course aims to provide to students a comprehensive knowledge of good research practices. Students will also be exposed to ethical and legal issues related to research. Emphasis will be placed on the ability of the students to apply the appropriate research methodologies and analytical techniques and on acquiring academic writing and presentation skills. (3 credits)*



## **DIVISION OF HUMANITIES & SOCIAL SCIENCES**

### **Art 120: Art Appreciation: Principles of Design**

*The purpose of this course is to introduce students to the general principles of design, that is, to the formal elements in any work of visual art (painting, sculpture, photography, film, contemporary installation art, etc.). The course will be thematic and topical, and will consider examples from all periods of Western and non-Western Art. Included in the formal course work will be visits to local museums and galleries to examine firsthand artworks illustrating the different principles studied. (3 credits)*

### **Art 130: Introduction to Photography, from the analog to digital era**

*This course introduces students to digital photography and image editing. Students will develop artistic skills in photography through experience in creation, observation and critical consideration of photography. Throughout the semester, students will be expected to photograph consistently, present assignments and projects in class and develop skill in using photography as a tool for visual communication. Class time will consist of lectures, demonstrations, critique of student work, lab work, museum and studio visits. In addition, students will be exposed to key photographic artistic movements. (3 credits)*

### **Art History 220: Ancient Greek Art and Architecture**

*This course surveys Ancient Greek art and architecture from the Early Iron Age through the Hellenistic period. Following an introduction to the nature of art, its various uses, and approaches to its interpretation, the course will provide a brief historical background for the major periods in Greek art. Each period will then be examined in detail, with particular attention to defining stylistic features, and to examining representative works in each of the genres (sculpture, painting, architecture, minor arts). (3 credits)*

### **Communication 227: Media Theory**

*The course covers the major theoretical perspectives that have shaped the field of media studies. Through the examination of their distinctive insights, concepts and problematics, the course emphasis is on the comprehension and evaluation of the contribution these perspectives had to the understanding of media and media-saturated modern society. The theories are presented and discussed in their historical and ideological context, aiming at developing a critical understanding of their viewpoint and import (3 credits).*

### **Communication 270: Digital Content and Storytelling**

*This course explores the world of online content and storytelling through a variety of digital and social media. Students gain insight into the uses and strengths of each medium –from Facebook and TikTok to blogs and podcasts–, as they learn to convey their messages through appropriate channels. Using selected case studies and best practices and via hands-on workshops, they will work together to identify common mistakes made in the digital world today, while realizing the endless possibilities it offers in order for them to reach their audience in the most impactful way. Applying the rules of storytelling, students will familiarize themselves with developing content for the various platforms and realizing the potential each piece of content holds. (3 credits).*

### **Communication 317: Communicating Through New Media**

*This course offers a broad but in-depth introduction to theories of the new media as well as the impact and influence of the new media on various aspects of socio-cultural life, including journalism, art, identities, politics, social issues, and so on. Overall, it adopts an applied approach by examining the various socio-cultural aspects of the new media in concrete settings and thus aims to provide students with an understanding of the crucial changes that most socio-cultural sectors have undergone due to the evolution of new media. (3 credits)*



### **Communication 345: Media Ethics in the digital age**

*The course introduces students to the key issues of media ethics not only as an essential tool to safeguard fair and credible News reporting, but also as an important element of the journalists' professional identity in the digital age. Looking at ethics as the thread to connect the different stages and actors of this online transition, students will familiarize themselves with the ways and the tools the Media use to respond to their societal role, to find alternative funding models to use, and to perform better in engaging a diverse public while trying to face the phenomenon of disinformation. Through analyzing the principles of ethical commitment and the way they are challenged within the digital landscape, students will be introduced to the debate on how to reverse the public's distrust in News and Media. (3 credits)*

### **English 101: Composition I**

*This course reviews the basic principles of paragraph writing and introduces the major rhetorical modes of narration, description and exposition through discussion of theory, examination of model essays, and writing practice. In addition, students are introduced to information literacy by spending seven two-hour sessions in the library, developing effective search strategies, understanding the differences between types of resources, and using critical skills with which to evaluate resources. (3 credits)*

### **English 203: Advanced College English Skills**

*This course aims to enhance academic skills in listening, speaking, reading and writing as well as develop significant critical thinking and research skills essential in an academic community and beyond. Texts on contemporary issues from various disciplines including newspaper articles, autobiographies, essays and peer reviewed journal articles will be examined. Close reading of texts will be the basis for discussions, debates, exercises and written assignments. Podcasts, blogs and short videos will also be used to practice Academic English skills. Themes and skill areas are selected to complement and enrich the learning experience of students of all fields. (3 credits)*

### **English 204: Business/Professional Communication**

*The course instructs students in all aspects of professional communication including writing, reading, speaking and listening. It offers business and computer science students in particular opportunities for vocabulary enrichment and structural improvement specific to their own professional communication. Through the use of a variety of different teaching and learning methods the course gives students the opportunity to practice and improve their overall use of professional communication skills, both orally and in writing. The overall aim of the course is to enable students to realize their full potential in terms of the sophistication, relevance and fluency of their professional communication skills. (3 credits)*

### **English 299: Teaching Approaches and Methods: Past and Present**

*This course explores the past and current theories of language teaching methodology. Students gain an insight into the major and minor trends in twentieth-century language teaching as well as investigating alternative approaches and methods. It aims to clarify the relationship between approach, design and procedure, and present a model for the description, analysis, and comparison of methods. Further investigation is carried out for each method in terms of analyzing its underlying theoretical approach, the specific design features associated with each method and finally the procedures which are linked with each method including classroom techniques and practices. Additionally, current communicative approaches are examined along with the post-methods era. (3 credits)*

### **English 320: The Other in Literature and Media**

*The Other has been a very common figure in literature as well as media, especially television and film. This course will focus, in an interdisciplinary fashion, on the various portrayals of "otherness" as they appear in diverse socio-historical contexts and from diverse points of view. Students will be exposed to a wide variety of written and visual texts and critically explore how humanities and social sciences 101 humanities and social sciences Otherness has been imagined and portrayed in terms of gender, social class, race, sexual orientation, ethnicity and religion. Students will also consider the figure of the "Other" in Greece, as well as the figure of the Greek as the "Other" within the context of 20th century United States. They will be encouraged to interrogate culturally dominant assumptions regarding "otherness" as well as read canonical texts against the grain, with a special focus on Western constructions of the "Other". (3 credits)*



### **English 340: Comparative Literature**

*The course aims to engage students in a comparative study of literary representations of sexuality from antiquity to present times. Terms such as 'sex' and 'sexuality' are often used interchangeably, without considering their many different connotative meanings at different historical periods, or in different cultural contexts. The course is divided into three parts: a) philosophy and sexuality, b) class, gender, sin, and sexuality, and c) Freud, psychoanalysis and sexuality, which will bring us back to philosophy. Works in translation will help us reveal the nuanced role of language itself in terms of constructing sexuality. (3 credits)*

### **English 395: Senior Thesis II**

*This is the second part of a course in which the students are required to write an 8,000-word thesis, or a 6,000-word thesis if accompanied by a strong multimedia component. It forms a fundamental component of the BA Hons in English curriculum, serving both its pathways, which offers students the opportunity to cultivate the abilities and skills necessary for the realization of a medium-scale research project, from the formulation of the initial research question to its final submission. The course offers an integrative, project-focused approach deemed particularly useful both to a wide variety of professional settings and to the advancement to graduate studies. (3 credits)*

### **European Studies 210: Foundations of European Integration**

*This module will expose students to the historical, political and institutional developments of the European Union. It introduces key developments, institutions and policies, examines the theoretical framework of European integration, and studies the European Union as a global actor, with specific reference to the enlargement process and external relations. (3 credits)*

### **Greek 101: Beginning Modern Greek I**

*The aim of this course is to develop students' familiarity with oral and written Greek through dialogues dealing with everyday situations and written material drawn from the popular media. Emphasis is on oral communication. Grammar is learned through dialogues illustrating everyday communication, while students gain practice by role-playing and acting out numerous everyday situations. The vocabulary used meets basic social needs for an environment where Greek is spoken. (3 credits)*

### **History 201: Women in Modern Times**

*An upper-level survey which studies the evolving conditions in which women have lived and worked in the western world from ca. 1750 to the present. A variety of types of evidence, from legal documents to art and literature, will be examined. Students will also be introduced to contemporary theoretical developments in the larger field of women's studies. (3 credits).*

### **History 221: Modern World History**

*This course examines global history from 1900's to the present, addressing key themes and trends in the political, cultural, social, and intellectual landscapes of the period. While emphasis will be on interpreting the century's historical trajectories, the course will also seek to historicize globalization, evaluate the concepts of globality and transnationalism, and study critical responses to globalization. (3 credits)*

### **History 232: Thessaloniki: A City and its Inhabitants**

*Throughout its long history, Thessaloniki has been home to many different peoples and cultures. The purpose of this course is to review the history of the city and to focus on the different ethnic communities, which have inhabited it, including principally Greeks, Turks, Jews, and Armenians, among others. The course will consider the establishment of the city in Hellenistic times, its Roman and Byzantine periods, the impact of the Ottoman occupation, the coming of the Sephardic Jews, the effects of the Balkan and the two World Wars as well as those of the Holocaust on the city. It will include visits to such important cultural sites as the Archeological Museum, the Museum of Byzantine culture, the Jewish Museum of Thessaloniki, Roman antiquities and Ottoman buildings. (3 credits)*



### **History 331: Topics in Twentieth-Century Greek History**

*The purpose of this course is to explore in detail some of the main themes in modern Greek history. The course will investigate such topics as immigration and refugees, war and its consequences, the right and the left in Greek politics, the city/country divide and the process of urbanization, and the Greek family and gender identity. The course will also examine modern poetry and literature, and traditional and modern forms of music. (3 credits)*

### **Humanities 120: Understanding Greek life and culture**

*The course provides an understanding of contemporary Greek life and what it means to be Greek. It does so by examining the practices and creations of Greek culture, as well as by identifying and understanding the main figures of Greek life and the political scene through time. In addition, it develops students' intercultural and communicative competency so that they can interact both locally in Greece and in the global community. Indicative content areas: Modern Greek language (acquisition of effective Modern Greek communication skills for daily use), Greek culture (language, art, cinema, music and customs), the Modern Greek state structure (background, historical development, public administration, and political parties), figures and Institutions, Greece as pluralistic society (the Orthodox church, family, community and values, migration, minorities), national identity (nation-building, ethnicity, and Greeks within Europe, the Balkans and the world) (3 credits)*

### **Humanities 209: Topics in Mythology and Religion in the Classical World**

*The course provides a systematic in-depth study of the major mythological characters, deities and myths of (mostly) the Greeks and the Romans through the use of both primary and secondary source material, visual and literary. The approach will be thematic and we will explore the nature and scope of mythology as well as its relation to religion, history and art. Comparisons with associated mythologies of the ancient Mediterranean world will be in place in order to demonstrate the broader historical and cultural framework. The myths and religion will also be studied in terms of their endurance and relevance in the western world as well as in popular culture. Finally, they will function as a setting for the discussion of matters of spirituality in the contemporary world. (3 credits)*

### **Humanities: 246 American Literature and Culture**

*This course aims to provide students with insights into contemporary American literature, culture and society through an examination of selected literary texts and non-fictional sources which reflect the socio-cultural contexts of particular 'moments' in America's historical trajectory from the mid-nineteenth century to the present. Students will be exposed to a variety of texts from different fields including: literature, the visual arts, political/historical essays/commentaries, and music. (3 credits)*

### **Philosophy 101: Introduction to Philosophy and Critical Reasoning**

*The primary aim of this course is to train students in the skills required for critical analysis of discourse. Its secondary aim is to apply these critical analytic skills to the activity of philosophizing. Accordingly, the course is divided into two parts. In the first, the main concern is with the validity of inferences. Students learn sentential and predicate calculus so that they are in a position to check the validity of any argument proposed. In the second part, the main concern is inquiry and to this purpose the students first apply logical theory to methodology (induction, hypothesis, abduction, explanation, reduction theory, definition, distinction, issue, problem), and then apply all these techniques to the discussion of two problems: the existence of God and the problem of mind and its relation to matter. (3 credits)*

### **Philosophy 203: Ethics**

*This course is designed to help students develop their critical abilities through the analysis of ethical problems and to introduce them to contemporary ethical theory. Following an introduction to the structure of ethical problems, three classical approaches to the problem of justification are presented: moral obligation (Kant), the consequences of one's actions (Utilitarianism), and personal virtue (Aristotle), respectively. The course also includes discussions of meta-ethical issues concerning the relation between fact and value and the problem of justifying and then generalizing one's ethical judgments including the issue of moral relativism. (3 credits)*



### **Politics 101: Contemporary Politics**

*The purpose of this course is threefold. First, it explores various dimensions of what political scientists call “governance” and what psychologists call “Machiavellian Intelligence,” namely those instances in our daily lives where humans, by their very nature, engage in activity one might call “political.” Second, the course examines different aspects of the formal, systematic study of political phenomena, commonly known as the academic discipline of political science. Finally, it considers basic elements of negotiation, from simple exchanges with neighbors to formal diplomatic relations in contemporary international relations. (3 credits)*

### **Politics 201: International Relations**

*This course begins with an examination of the key notions and actors in the field of international relations, as observed principally from the twin perspectives of global interdependence and mutual vulnerability. It then focuses on various institutional, ethnic, geopolitical, strategic, and economic issues of current interest. At the same time the course has as an objective to provide an overview of the main classic and contemporary trends in international relations scholarship. (3 credits)*

### **Politics 230: Comparative Politics**

*The course studies and compares politics across states, by exploring several questions through research on similarities and differences among countries and within and between political systems. In the process, students will discover various ways in which institutional and non-institutional variables determine the answers to complicated questions like why nations thrive or fail, how culture affects governance quality, or what drives change within states and across borders. Country cases will be drawn from different regions of the world to ground students in the set of tools of comparative analysis, so that they may use these tools to further examine and link facts to the larger questions of international relations. The course will thus enhance student capacities to explain political phenomena, and eventually make predictions, using the comparative method. (3 credits)*

### **Politics 233: International Law and Organisations**

*The aim of this module is to introduce students to the complex, yet interesting system of international law and to the basic concepts and theories of international organizations and how they have changed the mechanisms of reasoning behind the making, implementation and enforcement of international law. A large portion of the module will focus on the fundamental principles of international law, the law of treaties, the relationship between international and domestic law, the imperative of human rights and the impact that international organizations have in the field of international relations, such as peacekeeping operations, human security and terrorism. (3 credits)*

### **Politics 301: War and Human Security in the Modern World**

*In many respects war seems to be a major preoccupation of humankind. This course sets out to examine various perspectives on the causes, nature, and implications of war and genocide, as well as familiarizing students with the major issues and concepts associated with violent conflict. In addition students will become engaged with the dynamics of efforts to establish peace and resolve conflicts through an examination of applied theoretical frameworks and case study analyses. (3 credits)*

### **Politics 350-351: Senior Thesis**

An intensive, two-semester research project guided by one or more ACT faculty. Required for all PS&IR majors.

### **Psychology 200: Adulthood and Aging**

*The goal of this course is to provide a critical analysis of the methods and theories that have been applied to the study of human ageing from a psychological perspective through the study of major theories of aging, changes in physical and mental health, personal transitions, and social relationships, as well as death and dying. (3 credits)*



### **Psychology 202 - Personality Theories**

*This course will help students to deepen their knowledge regarding the formation of human personality and its impact on several areas of life. Also, the course intends to cover the main theoretical approaches, their strengths and limitations as well as their application to the explanation of psychopathology and problematic behavior. As nowadays, in the field of psychology, a lot of researchers and professionals suggest an eclectic approach, students need to be acquainted with the various theoretical schools and be able to apply basic theoretical information to real-life examples in practice. Focus will be also given to relevant issues, such as the genes and environment debate, gender differences and cultural perspectives so that students develop a holistic approach to the understanding of human personality. (3 credits)*

### **Psychology 204: Social Psychology**

*This course aims to help students understand interaction – how we are influenced to think, act, and feel in order to gain greater awareness of how the social animal man is driven. Topics include group processes and influences, persuasion and its techniques, how we conform, and tactics of conformity. Concepts presented will be exemplified through evidence from everyday life. Communication and non-verbal communication, their significance, and techniques employed for both are considered. Students are given the opportunity to understand concepts presented through experimentation and are also required to undertake questionnaire surveys. Research conducted in both the United States and Europe is presented. (3 credits)*

### **Psychology 206: Research methods and Statistics II**

*This is a course in which students are given the opportunity to develop their critical understanding of the research process in Psychology and build a solid ability to evaluate methodological issues in specific Psychology research studies. The students advance their knowledge of qualitative data analysis (mainly typological analysis, thematic analysis and discourse analysis) and of quantitative data analysis by learning about inferential statistics and in particular estimation of parameters and hypothesis testing and significance. Finally, the students acquire the knowledge and skills to design and conduct a piece of small-scale original research. This module provides valuable preparation for final year thesis. (3 credits)*

### **Psychology 221: Neuropsychology**

*This course aims to enable the students have a good grasp of the most recent advances, and a critical assessment of the literature in the field of neuropsychology. The focus is on particular neuropsychological conditions and cognitive dysfunctions that are the result of known structural brain damages. With respect to brain damage, the focus is on assessment and treatment methods. All these factors are studied in their single and combined effect on normal neurocognitive outcome as well as on mild to severe cognitive dysfunction in adult. For that purpose, a broad range of research methods is overviewed and explained, including longitudinal, interventional, experimental, patient-related, psychophysiological, and neuroimaging techniques. Discussed syndromes and disturbances: neglect syndrome, apraxia, aphasia, dementia, epilepsy, disturbance of visual processes, memory disorders and disorders of attention and executive functions. (3 credits)*

### **Psychology 250: Psychopharmacology**

*This is a course which covers the basic principles of psychopharmacology. The module investigates the questions of what drugs are and how they influence psychological phenomena. Diverse types of drug use and abuse are explored. The course addresses questions on how and why drugs are used for treatment for psychopathological conditions, which are the mechanisms of addiction, what is tolerance and abuse. It also addresses the main and side effects of psychoactive drugs and how these are associated with effects on perception, emotion and behavior. (3 credits)*

### **Psychology 320: Dialectical therapy**

*The aim of the course is to introduce the fundamental concepts and methods of behavioral therapy and to provide a basic introduction to DBT formulation, and treatment planning. The course also provides an overview of behavioral techniques and will familiarize students with the general theoretical context, as well as the main therapeutic principles within each theoretical approach. It will also consider the applications and empirical based evidence for the success of each approach and is designed to explore how certain approaches in psychotherapy can be employed to provide an insight into mental health problems, drawing on many theories and therapeutic practices to provide a better understanding. (3 credits)*



### **Psychology 340: Psychology of addiction**

*Students are given the opportunity to develop their understanding of psychological and biological aspects of substance misuse and addiction as well as the potential treatment methods. Other non-substance addictions are also discussed such as gambling, internet addiction etc. The course aims to teach students how to assess and diagnose substance use disorders and in short to provide an overview of the psychosocial and neurobiological bases of addiction, the factors that affect addictive behavior and also how to describe and analyze appropriate therapeutic interventions. (3 credits)*

### **Psychology 351: Senior Thesis II**

*This is the second part of a course in which the students are required to write an 8,000-word thesis. It is a fundamental component of the Psychology curriculum in which the students display their ability of formulating a research question which they research and write a detailed analysis of in 8,000 words. (3 credits)*

### **Psychology 360: Advanced Applied Statistics for Psychologists**

*In this course, students are given the opportunity to develop an understanding of the research process and familiarize themselves with main paradigms and advanced statistical methodologies in Psychology research. The course helps students understand the strengths and limitations of different research paradigms, various research methodologies and methods in Psychology, as well as apply advanced statistical techniques and learn: a) about the main descriptive statistics techniques, b) inferential statistics techniques, c) non – parametric tests, d) correlational analysis and e) high order (factorial) AN.O.VA statistical methods. Students are also given the opportunity to analyze the aforementioned methods using SPSS, using Psychology examples and data. Students will also learn why Psychology is an empirical science and how empirical research can be designed step-by-step in Psychology. Additionally, students will acquire statistical literacy (at the level of advanced statistics) through practical classes that will allow the learnt concepts and analytic techniques to be practiced, both by hand and through using a computer and the relevant software (SPSS). (3 credits)*

### **Psychology 400: Clinical Psychology II: Psychological Assessment**

*This course provides students with an opportunity to develop further their knowledge and skills in the areas of observation, measurement and psychometric assessment, including the use of formal psychological tests. Also, the aim is to explore the theory and application of psychological tests as measures of personality, intellectual functioning, attitudes etc. and learn how to use certain types of tests, their advantages and disadvantages, and test reliability and validity. Additionally, students will gain insight into the appropriate use of tests, tests construction, administration of tests and interpretation of test results. (3 credits)*

### **Practicum 300**

*This course enables students to immerse themselves in real-life contexts, collaborate with community partners and mentors, and better understand the requirements of the community engagement and professional work, where relevant. There is a focus on reflexivity, problem-solving, communication skills development, critical thinking and writing. The course will offer students experiential and service-learning experiences which bring together knowledge acquired in various modules in their field of academic studies and its applications in diverse research and practice-based environments. As such, this placement module prepares students for further independent work and gives them hands-on experience of various professional fields, better equipping them for the job market. (3 credits)*

### **Social Science 323: Race and Racisms**

*This course sets out to examine various sociological perspectives on race and the processes of racialization. Students are given the opportunity to develop their understanding of the idea of race and key aspects and practices of racism. Students will gain insights into the evolution and construction of race in history and familiarize students with different types and forms of racism. In order to fulfill these objectives in a satisfactory manner, this course embraces an interdisciplinary approach at both the theoretical and applied levels. (3 credits)*



## **DIVISION OF TECHNOLOGY & SCIENCE**

### **Anatomy and Physiology 116 (SNCH 116): Anatomy and Physiology II**

*This is a required module for all Biological Sciences majors and it is the second part of a two-part Anatomy & Physiology Course. It is designed to provide an understanding of the anatomical structures, function and regulation of cardiovascular, respiratory, digestive, urinary, immune and reproductive systems. The fundamental concept of homeostasis described elsewhere at the cellular level is here approached as the outcome of the interaction of organs at the systemic level. This is a combined lecture and lab module that explores the relationship between structure, function, and homeostasis in the human body. It aims to provide students with knowledge of normal function of the organ systems and thereby provide the information base for interpreting data relating to health and disease. This module covers the cardiovascular, respiratory, digestive, urinary, immune and reproductive systems. For those in health fields, this information will serve as the foundation for most of their courses. (4 credits)*

### **Biology 112 (SNCB 112): Principles of Biology**

*This course is designed to introduce the basic principles of modern biology, the framework within which new discoveries are interpreted, and the relations among various branches of biological research. The goal of this course is to provide first year students with a firm grasp of the major concepts underlying biological processes. Students who are interested in careers in biological sciences, biomedical sciences, and biotechnology should find that the course provides a firm grasp on an understanding of the concepts that will serve them well in their academic track that lies ahead. The materials covered include the structural and functional aspects at the molecular and cellular level of the following: cell structure and function, cell organelles, cellular reproduction, cellular respiration, photosynthetic pathways, Mendelian inheritance, DNA structure, replication, gene structure, and gene function and expression/control. (4 credits)*

### **Biology 113 (SNCB 113): General Biology 2**

*Upon Completion of this course students should be able to: Describe the theory of evolution, the mechanisms of evolution especially by means of natural selection, the evolution of populations and species, and the evidence in support of evolution; Describe the history of life on Earth and research into the origin of life as well as the major periods of geologic time, the fossil record and the role of changing environmental conditions and mass extinctions in the evolution of life; Recognize a phylogenetic tree and the principles involved in grouping organisms on an evolutionary tree; Distinguish between organisms in the 3 domains of life and provide identifying characteristics of each; Identify groups of protists, the main clades of fungi, major groups and evolution of land plants and key characteristics and evolution of both invertebrate and vertebrate animals; Describe the societal implications of biopharmaceuticals, ocean acidification, climate change, habitat destruction and loss of biodiversity on human health. (4 credits)*

### **Biology 230: Genetics and Molecular Biology**

*This course aims in developing an understanding of fundamental concepts in genetics and molecular biology. We will examine the central dogma in molecular biology, cell division, regulation of gene expression, Mendelian, non-Mendelian and molecular genetics, genes linkage and mapping, mutations, biotechnology, developmental, evolutionary and population genetics. (4 credits)*

### **Biology 320: Biochemistry**

*This course will provide an introduction to biomolecules in living matter. The simplicity of the building blocks of macromolecules (amino acids, monosaccharides, fatty acids and purine and pyrimidine bases) will be contrasted with the enormous variety and adaptability that is obtained with the different macromolecules (proteins, carbohydrates, lipids and nucleic acids). The nature of the electronic and molecular structure of macromolecules and the role of non-covalent interactions in an aqueous environment will be highlighted. The unit will be delivered through lectures, formative practicals and related feedback sessions to ensure students fully understand what is expected of them. Short tests (formative assessment) will be used throughout the unit to test students' knowledge and monitor that the right material has been extracted from the lectures. (4 credits)*



### **Biology 420: Environmental Health and Toxicology**

*This is a required course for all Biological Sciences majors. This course explores the structure and function of ecosystems, the relationship people have with their environment, the risk management choices made, and the resulting associations that affect health and physical well-being for the individual, communities, and susceptible populations. Additionally, it focuses on describing the body's response to drugs, foods, and toxic substances and it examines the biological responses to acute and chronic exposure to environmental, dietary, occupational, and pharmaceutical stress factors. The goal of this course is to provide students with information about the fundamental principles of organization and function of earth's terrestrial and aquatic ecosystems, the effects of human activities on ecosystems functions, and the ways environmental factors impact health outcomes, and the control measures currently used to prevent or minimize the health effects from these negative impacts. Additionally, the course focuses on developing an understanding of how the body's biochemical and physiological mechanisms operate to manage exposure to toxins, poisons, and drugs. (4 credits)*

### **Biology 450: Immunology**

*This is a required course for all Biological Sciences majors. The course is designed to introduce students to the study of the molecular and cellular interactions and principles of the immune system. Topics such as immune system organization and development, humoral & cell-mediated immunity, immunodeficiency, and autoimmunity will provide the students with a broad body of interdisciplinary concepts related to homeostasis at the systemic level. Upon completion of this course the student will have a thorough understanding of immunological responses to disease factors. Students will learn about the organization, structure, and function of the immune system, how it can fight infection and why in some cases an immune response can fail. In addition, the course focuses on describing the type of immune responses activated by different kinds of factors, and how infectious agents can overcome the natural immune response and cause disease. (4 credits)*

### **Biology 494: Thesis II**

*The module is the second half of a year-long capstone project, concluding the students' four-year learning experience in the Biological Sciences program. It is designed to foster research, autonomy, and synthesis of concepts and skills acquired in all other modules. The first half of the capstone project (SNCB 493) is devoted to research/analysis and design, while the second semester counterpart (SNCB 494) places emphasis on implementation, experimental validation, thesis writing, and final project presentation. (4 credits)*

### **Chemistry 117 (SNCC 117): General Chemistry for the Biological Sciences**

*This course is designed to introduce biology students to the fundamental principles of chemistry. Topics to be covered include atomic structure, chemical equations, the periodic table, chemical bonding and intermolecular interactions, thermochemistry, reaction spontaneity, reaction rates, chemical equilibria, acid base chemistry and reactions in aqueous systems. Emphasis will be given to applications of chemical principles in biological systems. Students will develop an understanding of: Atomic structure and chemical properties of elements; Chemical reactions and reaction stoichiometry; Nature of chemical bonding and molecular shape; Significance of intermolecular forces; Thermodynamics of chemical reactions; Chemical kinetics, chemical equilibria, reaction rates, Acid base chemistry, and Buffers, acid base equilibria. (4 credits)*

### **Chemistry 216 (SNCC 116): Organic Chemistry II**

*This course provides an introduction to the principles and practical aspects of organic chemistry. Students will develop an understanding of the structure of organic compounds by recognizing main functional groups, naming the compounds using the I.U.P.A.C. system. They will be able to predict their properties using the type of bonding, hybridization state, intermolecular forces and stereochemistry, conjugation, resonance, and aromaticity mechanisms of reactions: nucleophilic substitution, elimination, electrophilic addition, condensation. Apply this knowledge to predict the major product in organic reactions, involving ethers, carbonyl compounds, aromatic compounds, amines characteristics of the common functional groups and the formation and properties of larger molecules. (4 credits).*



### **Computer Science 101: Introduction to Computing**

*The course aims at making the student an effective computer user within the contemporary networked environment of both the office and the Internet. Students learn the usage of modern programs suitable for composition, calculation and presentation, as well as the facilities available for communicating and researching through the Internet. The fundamentals of how the computer and a network of computers work are discussed in order to provide a basic understanding of the modern computing environment. (3 credits)*

### **Computer Science 108: Digital Tools for the Humanities**

*This module is an introduction to multimedia tools that are essential for the effective and visually appealing communication through a variety of digital applications. Media components, such as digital images, graphics, text elements and digital video are introduced and their parameters defined and studied. Software multimedia development tools, necessary for the creation of digital media, are presented and students acquire hands-on experience with a package for each media category. Emphasis is given on the proper workflow that should be followed in order for the desired result to be achieved in a time-efficient, productive and professional manner that meets both the standards and the trends of the industry. Multimedia project design parameters are examined and applied to a student capstone project. The main software used in this module will be Adobe Photoshop/ photopea.com (online editor), Adobe Bridge and Adobe Premier Rush. (3 credits)*

### **Computer Science 151: Quantitative Computing**

*This course aims at increasing students' quantitative skills through extensive usage of popular spreadsheet programs. Students will be exposed to numerous basic concepts of computing, including data types and formats, spreadsheet programming and data structures. A variety of problem solving tasks will be presented at an introductory level, including data analysis, simple system modeling and simulation. Applications will be drawn from several disciplines, including business. (3 credits)*

### **Computer Science 201: Business Computing**

*The course aims at presenting Business majors with the basic computing structures needed to support a company's management. Students will be exposed to data tables from a variety of business activities as well as the database techniques necessary to model and effectively process these data for the purposes of company assessment and planning. Examples of applications residing in the WWW will be presented, analyzed and subsequently implemented by students with the database medium used in the course. (3 credits)*

### **Computer Science 219: Video Game Design**

*This course introduces the critical study of computer video games and the professional practice of game design. Through readings, discussions, research, and practical "hands-on" projects, students will better understand the current market for games and simulations and develop the fundamental skills necessary to enter the international computer games industry. Although the commercial video game pipeline will be discussed, the actual production framework for the class will mirror a "Indie" game team "prototype game level" development. Students will be expected to fill multiple roles in the production process, and gain hands-on experience in the collaborative processes of game design, project management, scripting, content creation pipeline, in game animation, and play-testing. (3 credits)*



### **Computer Science 230: Introductory Systems Programming**

*The course continues from CS105, Structured Programming, aiming to making students familiar with a variety of fundamental software engineering challenges which can be solved by developing the appropriate software algorithms. The course furthers algorithmic skills with increased emphasis on systems programming. More elaborate data structures are manipulated and the role of libraries accessing Operating System resources (Disk, I/O) is examined. In this manner the course serves as a bridge between the Programming Fundamentals and the Computing Systems program threads. The course employs a high-level language (C++) and investigates structured programming as follow-up to the introductory course in programming. More elaborate structures are learned and employed, in order to solve a wide range of tasks. Intricacies of the C/C++ languages are investigated and related to computer architecture (pointers, variable addresses, memory allocation). The course, in addition to furthering algorithmic thinking skills, also serves as the introductory course for the Computing Systems program thread, as the relationship of the high level language with the underlying computer system is investigated and applied to system programming tasks involving I/O with a variety of external devices (user interaction, storage, microcontrollers). (3 credits)*

### **Computer Science 306: Advanced Web Development**

*This course builds upon the skills and knowledge about creating and publishing Web pages and sites taught in CS 206. It also introduces students to advanced web development areas, required for students interested in pursuing a career in web site design. This course aims mainly on client-side scripting using the programming language JavaScript. The objective will be to understand what scripting languages are and to be able to develop scripts. The course will also offer an introduction to jQuery library, Asynchronous JavaScript and XML (AJAX), basically showing the benefits of their use and applying it to certain programming tasks. In the last portion of the course, students will gain a practical knowledge about the currently most used web content management environments. By combining lectures with seminar discussions and extensive hands-on experiences the course will introduce the students both to the applied aspects of content management technologies but also to the theoretical issues involved. (3 credits)*

### **Computer Science 312: Database Management Systems**

*This course offers a systematic coverage of modern Database Computing theory and technology. Topics include Relational Algebra, Data Modeling, Database Design, Concurrency and Locking, Client-Server Database Management Systems, Interface Design, trends in Database Systems, combination of Object Oriented Modeling, and Relational Databases. The course is based on a modern client design tool and requires Event-Driven Programming. (3 credits)*

### **Computer Science 321: Operating Systems**

*This course deepens understanding of how contemporary computing systems are structured and, in particular, supported by an Operating System. It is a culmination course within the Computing Systems programme thread. Operating Systems are the brain of any computing system. They handle the body/DNA (hardware) as well as behavior (usage of system by user). Following rapid to revolutionary technological developments the field of Operating Systems also undergoes tremendous changes, which constantly evolve the conception of an OS and of course the technological challenges involved in its implementation. The course aims at outlining the role of an OS in a diachronic way while comparing and contrasting design choices spanning the evolution of the field. It aims at defining fundamental needs that a von Neumann machine has from the Operating System in order to be functional, optimal and attractive to the user. The course explains Operating Systems architecture and examines trade-offs involved in different, evolving systems. It further examines diachronic as well as contemporary issues involved in Operating System design by comparing and contrasting relevant design and algorithmic choices. The course involves lab work: Communication with the OS at a low level via a Linux shell and programming tasks addressing aspects of Operating System design and implementation. (3 credits)*



### **Computer Science 330: Introduction to Mobile Robotics**

*The primary difference between robots and other types of computing devices is their ability to sense and have a physical effect on their environment, rather than to simply gather, process and communicate data like most other computing devices. This is particularly evident in the case of autonomous mobile robots: they face the challenge of sensing data from their surroundings, selecting their own navigation waypoints and dynamically altering their course to account for obstacles, power supply restrictions and unexpected events. In this course theoretical instruction is combined with experiential learning and challengedriven software development. Students are challenged individually and in teams to build the hardware chassis, electrical harness and software algorithms for their autonomous mobile robots. This course assumes that students possess a basic background in structured programming and is based on an introduction to microcontroller and mobile robotic programming using the C and RobotC languages. The curriculum commences with an introduction to microcontroller programming and sensor data acquisition, proceeds with the use of actuators, basic navigation, obstacle avoidance, sensor data fusion and concludes with several team challenges in robotic design. This course builds on structured programming skills developed in CS105: Introduction to Programming I – Structured Programming.*

### **Computer Science 333: Computer Networks II**

*This module is offered as a Level 6 Elective to students that have passed module CS322 (Computer Networks I). The module builds on the material learned in CS322 and expands the students' knowledge and understanding to more advanced and complex network concepts and designs. The focus is mainly routing and switching in LANs and WANs, but other major areas of networks like wireless, security and Broadband technologies. Completing CS322 and CS 333 a student is eligible to take the exam for the Cisco CCNA certification. The aims of the module are to expand students' knowledge in modern day networks. There are three primary goals; expand the strong foundations for Local Area Networks built in CS322, introduce Wide Areas Network Design and Technologies, and provide the fundamentals of trending networking areas including, but not limited to, wireless and security. (3 credits)*

### **Computer Science 345: Applied Machine Learning and Deep Neural Networks**

*The course explores the vast field of Machine Learning (ML) at the senior level, focusing on its applications and related software implementations. Covers a variety of related ML models but specializes in the subfield of Deep Learning that encompasses the most successful algorithms that are used to train Deep Neural Networks (DNN). The course mostly emphasizes on the practical application of Machine Learning on data that are available for the needs of a specific intelligent task. These tasks belong to diverse domains like Image Recognition, Natural Language Understanding, and Recommender Systems, and during the course, students will be handed the appropriate source code examples, which implement ML models for the tasks. Understanding the basic theory through examples, allows the formulation of a solution for the given task and consequently, the selection of an ML model, which can be a DNN, that will become a software implementation using popular libraries. The correct selection and usage of the related data samples are part of this research and development process. The experimental setup includes a quantitative evaluation of the solution performance using the proper metrics. The research methodology concludes by identifying problems of ML through evaluation, designing improvements for the next set of experiments, or stating open questions for future work. (3 credits)*

### **Computer Science 360: Introductory Data Science**

*This course is an introduction to data science using Python. Students learn how to process, clean and manipulate data in a variety of formats; visualize multidimensional data; communicate the findings of a data analytics project; apply machine learning algorithms to a variety of datasets; design pipelines for the evaluation of models' performance. This course provides the student with the data-science skills and the analytical mindset necessary to meet the needs of business and the real-world decision-making problems. (3 credits)*



### **Ecology 110: Ecological Principles**

*The goal of the course is to introduce students to general ecology. It focuses on major ecological concepts in order to provide students with a robust framework of the discipline upon which they can build. Each discussion is organized around two or four major concepts to present the student with a manageable and memorable synthesis of the lecture and it is supported by case histories that provide evidence for the concept and introduce students to the research approaches used in the various areas of ecology. Special emphasis to local environmental problems countries face and the approaches they use in solving these problems. Laboratory included. (4 credits)*

### **Mathematics 101: Elements of Finite Mathematics**

*This course places an emphasis on the role of functions (coordinate systems, properties, graphs and applications of polynomial, rational, logarithmic and exponential functions), solving systems of linear equations, matrix operations, mathematics of finance, and introductory counting techniques. (3 credits)*

### **Mathematics 115: Business Calculus**

*This course covers: rate of change and introduction of the derivative for functions of one variable; applications of the derivative to graphing one-variable functions and to optimization problems; introduction of functions of several variables and partial derivatives; problems of unconstrained and constrained multivariable optimization; applications of differential equations; integration of functions of one variable and applications, and advanced methods of optimization. Emphasis is placed on applications and problem solving through conventional and computer methods. (3 credits)*

### **Mathematics 120: Calculus I**

*This course provides a solid foundation in Calculus concepts, tools and techniques for the student entering Science and Engineering fields. The course covers definition, calculation, and major uses of the derivative, as well as an introduction to integration. Topics include limits; the derivative as a limit; rules for differentiation; and formulas for the derivatives of algebraic, trigonometric, and exponential/logarithmic functions. Also discusses applications of derivatives to motion, density, optimization, linear approximations, and related rates. Topics on integration include the definition of the integral as a limit of sums, anti-differentiation, the fundamental theorem of calculus, and integration by the U-substitution and Integration by parts technique. The course emphasizes conceptualization, modeling, and skills. There is a concentration on multiple ways of viewing functions, on a variety of problems where more than one approach is possible, and on student activity and discussion. (3 credits)*

### **Mathematics 210: Differential Equations**

*The purpose of this course is to give a solid introduction to Ordinary Differential Equations, for students entering Science and Engineering fields. This course is a continuation to Calculus II for Science and Engineering where the student has mastered: integration skills of 2D functions, and some applications in physics. This course will cover: First-order differential equations (Linear, separable, and exact. Method of integrating factor), Secondorder linear equations (Homogeneous, non-homogeneous, the Wronskian, method of variation of parameters). The Laplace transformation (Series solutions. Systems of first-order linear equations). Other topics addressed are: Integral curves of solutions, via software (MATLAB, Mathematica, or other), Numerical approximations: Euler's method, The Existence and Uniqueness Theorem, Matrix Algebra. The course emphasizes on skill, conceptualization and some modelling. All three are of great importance. Visualization and analysis via the use of technology is used in lecture and could be addressed in Take-Home Assignments. (3 credits)*



### **Mathematics 220: Discrete Mathematics for Computer Science**

*Discrete Mathematics can be defined as the study of structures consisting of a sequence of individual, separate steps. As such, they contrast with calculus, the latter describing processes which vary continuously or smoothly. If one can claim that the ideas of calculus were fundamental to the industrial revolution, then one can safely assume that the backbone of the science and technology of the computer age is discrete mathematics. The purpose of this course is for the students to understand and use the aforementioned discrete backbones of computer science. In particular, this class is meant to introduce logic, proofs, sets, relations, functions, counting, and probability, with an emphasis on applications in computer science. Further, this course will cover fundamental mathematical foundations required for conceiving, proving, and analyzing algorithms. (3 credits)*

### **Mathematics 230: Linear Algebra for Computer Science**

*This course is an introduction to the field of Linear Algebra, and focuses on the interplay between geometry, abstract algebra and hands-on programming. The main learning objectives are grouped in the four categories mentioned in the brief description above: students are expected to sharpen their geometric and visualization skills, develop and enhance abstract thinking via theoretical results and proofs, perform explicit computations cultivating and nourishing previously acquired programming 141 technology & science skills, and apply the course's core concepts on a wide variety of modern disciplines related to Computer Science. The course material and topics covered fall under four general categories. Visualization: focuses on the geometric aspects of linear algebra, including, but not restricted to, vectors, spaces of vectors, projections and rigid motions. Abstraction: makes use of the theoretical structures developed over the years, such as vector spaces, matrices, linear transformations, eigenvalues and eigenvectors. Computation: relates the geometry and abstract algebra of the previous two categories to programming via concrete algorithms: Gaussian elimination, determinants, Cramer's method, Gram-Schmidt and matrix multiplication. Applications: refers to connecting Computer Science oriented problems to the tools developed. The course aims to demonstrate applications of Linear Algebra to Optimization, Linear Programming, Graphic Design, Artificial Intelligence and Machine Learning. (3 credits)*

### **Nutrition 130 (SNCN 130): Fundamentals of Human Nutrition**

*The course explores basic concepts of the science of nutrition. Topics include description and role of nutrients, their dietary sources and their fate into the human body (digestion, absorption etc.); energy balance and weight control; eating disorders; nutrition at different developmental stages (childhood, pregnancy, lactation, old age); nutrition in the development/ prevention of human diseases. Emphasis will be given in the use of scientific methodology to explain how nutrients and other food constituents contribute to proper growth, development and health. (4 credits)*

### **Sea Sail 101: Introduction to Sea Sailing**

*The aim of this course is to provide the basic yachting skills so that successful students will be safety conscious, have a basic knowledge of sailing and be capable of taking a yacht out without an Instructor on board in light winds in protected waters. (3 credits)*

### **Statistics 205: Statistics I**

*This course introduces students to basic statistical concepts and techniques. Each technique is illustrated by examples, which help students to understand not only how the statistical techniques are used, but also why decision-makers need to use them. Topics covered include Frequency Distributions, Statistical Descriptions, introduction to Probability Theory, Discrete Probability Distributions, Continuous Probability Distributions, Sampling and Sampling Distributions. Emphasis is given to problem solving with the use of statistical software. (3 credits)*

### **Statistics 210: Introductory Statistics with R**

*This module is an application-oriented introduction to modern descriptive and inferential statistics using R statistical software. Students are first exposed to the basics of the R software including writing scripts and data manipulation. Then, a variety of statistical topics are discussed: study design, descriptive statistics, data visualization, random variables, probability and sampling distributions, point and interval estimates, hypothesis tests, and linear regression. Various real-world datasets are used for the application of the techniques learnt. No prerequisites, but a willingness to write code is necessary. (3 credits)*