

dynamic processes inside living cells (metabolism) will be included. Prerequisites: CHM 351-2. Corequisite: CHM 354. (CHM 354 is cross-listed with BIO 354.) Offered spring.

- CHM 431. ADVANCED INORGANIC CHEMISTRY** 4 sh
 This course will begin with an accelerated review of the history of inorganic chemistry, atomic structure and simple bond theory. It will then provide an in-depth introduction into symmetry and group theory with applications to the description of chemical bonding in molecular orbital theory. Acid-Base and Donor-Acceptor Chemistry and the descriptive chemistry of the main group elements will be followed by an in-depth survey of organometallic chemistry. The continued application of physical methods of structure determination of inorganic compounds by magnetic and spectral techniques including magnetic susceptibility, UV/VIS and IR spectroscopies and NMR spectrometry will be presented throughout the course. Prerequisites: CHM 205, 211-214 and CHM 334. Offered fall.
- CHM 432. PHYSICAL ORGANIC CHEMISTRY** 2 sh
 The study and applications of Hückel molecular orbital theory toward the understanding of the mechanisms of selected chemical reactions. The focus will be on empirical methods to derive mechanisms including linear free energy relationships and reaction kinetics. Techniques to be covered include photoelectron spectroscopy (PES) and computational chemistry (CC). Prerequisite: CHM 334. Offered spring.
- CHM 461. SEMINAR** 1 sh
 Students make presentations after they do individual library research. Student seminars are supplemented with seminars by practicing scientists. All chemistry-oriented students are encouraged to attend. Credit for junior and senior majors only or by permission of the instructor. Completion of this course satisfies the oral competency requirement for the B.S. and B.A. major in Chemistry. Course is two semesters in length with 0.5 sh each semester. Students must take both semesters. Offered fall and spring.
- CHM 471-479. SPECIAL TOPICS IN CHEMISTRY** 2-4 sh
 Advanced topics offered to meet the needs and interests of students include methods in forensic and medicinal chemistry, nuclear chemistry, nuclear magnetic resonance spectrometry, advanced organic or polymer chemistry. Prerequisites: CHM 212/214.
- CHM 481. INTERNSHIP** 1-4 sh
 Students gain advanced-level work experience in a chemical field. Internships are offered on an individual basis when suitable opportunities can be arranged. Prerequisite: permission of department.
- CHM 491. INDEPENDENT STUDIES** 1-4 sh
- CHM 499. RESEARCH** 1-3 sh
 In collaboration with a chemistry faculty member, students undertake experimental or theoretical investigations. Prerequisite: Approval of department chair. Offered fall, winter, spring.

Classical Studies

Coordinator: Professor Gill

Classical Studies is an interdisciplinary program of studies in the languages, history, culture and heritage of the ancient and early modern world. This program gives students an opportunity for concentrated study of "Classical" ideas and practices, which form an important part of Western civilization. In addition, the program examines the ways that these ideas and practices have influenced, and been modified by, later generations. A minor in Classical Studies can serve as a valuable complement to many fields, providing depth and context for a student's other courses, encouraging analytical study of primary sources and allowing the pleasure of reading some of Western civilization's greatest works.

A minor in Classical Studies requires the following:

Twenty semester hours taken from the list below and/or from other approved courses. At least eight of these semester hours must be at or above the 300-level. Courses must be chosen from at least three departments.

Acceptable courses in Classical Studies include

ARH 210	Art and History I: Gods and Empires
ARH 211	Art and History II: Cathedrals to Conquest
ARH 343	Renaissance Art History
CLA 110	Introduction to Classical Studies
ENG 221	British Literature I
ENG 321	Classical Literature
ENG 322	Medieval Literature
ENG 323	Renaissance Literature
FNA 265	Fine Arts in Italy/ELR
FNA 313	British Art and Architecture
GRK 110	Elementary Greek I
GRK 210	Elementary Greek II
HST 111	Europe and the Mediterranean World to 1660
HST 323	Making of the English Nation to c.1660
HST 381	Ancient Rome
HST 385	Ancient Greece
LAT 120	Elementary Latin Review
LAT 121	Elementary Latin I
LAT 122	Elementary Latin II
MUS 315	The Music of Ancient Times through Mozart
PHL 331	Ancient Philosophy
PHL 332	Medieval Philosophy
PHL 355	Philosophy of Religion
POL 300	Introduction to Political Thought
REL 111	The Old Testament Story
REL 112	Introduction to the New Testament
REL 321	Unearthing the Bible
REL 322	Old Testament Prophets
REL 324	Book of Job
REL 325	Revelation and other Apocalyptic Literature
REL 326	Life and Thought of Paul
REL 327	Lost Books of the Bible
REL 329	Jesus and the Gospels
REL 335	Christianity: Ancient and Medieval
REL 355	Philosophy of Religion
THE 301	Theatre History and Literature I

TOTAL	20 sh
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In addition to these catalog courses, occasional courses with special topics in Classical Studies will be offered.

CLA 110. INTRODUCTION TO CLASSICAL STUDIES: REACTING TO THE PAST 4 sh

In this introductory-level seminar students have the opportunity to find out more about the Greco-Roman elements that have shaped Western civilization. The class culminates in an intensive study of a crucial moment in Athenian democracy. Students will play out the history of Socrates, tyrants, democrats and slaves by taking part in an interactive game that questions the essence of democratic political systems (“Reacting to the Past: Threshold of Democracy”, for more information see www.barnard.edu/reacting). Counts as partial fulfillment of the General Studies Expression requirement. Offered in fall semesters.

Coaching

See Physical Education and Health

Communications

Dean, School of Communications: Professor Parsons

Associate Dean: Associate Professor Book

Department Chair: Associate Professor Grady

Professor: Copeland

Associate Professors: J. Anderson, Barnett, Costello, M. Frontani, Gisclair, Hatcher, B. Lee, Makemson, T. Nelson, Padgett, Skube, Ward-Johnson

Assistant Professors: Bush, Calhoun, Eke, Fulkerson, Gaither, Gibson, W. Johnson, Kiwitt, Landesberg, B. Miller, Scott, Tonkins

Lecturers: Cowen, Piland, Saltz

Instructors: Donohue, Eisne, Goodman, Harrison, Lashley, McMerty, Triche, van Lidth de Jeude

Communications serves four purposes in society: to inform, to persuade, to entertain, and to discover. Amid these multiple purposes, communications plays an important role in serving the public good and promoting citizenship in a democracy.

The School of Communications prepares students to think, write and produce meaningful content in a digital and global age. Students choose among four majors:

- Journalism (print, online and broadcast news)
- Strategic Communications (public relations and advertising)
- Media Arts and Entertainment (broadcast, cinema and new media)
- Communication Science (role of media and communication in society)

In addition, the school offers courses for students interested in sports communications, photojournalism, audio recording, and international communications.

Outside of class, students participate in campus media and organizations such as the student newspaper (*The Pendulum* and *Pendulum Online*), Elon Student Television (Phoenix14 News and other shows), the campus radio station (WSOE-FM), the university yearbook (*Phi Psi Cli*), a student cinema organization (Cinelon), an Elon sports show (airs on ESPN2 in the state), and a full-service student agency (Live Oak Communications).

A broad university education prepares students to be knowledgeable people in a complicated world, and the school’s curriculum provides the concepts and skills to succeed in a chosen career. About two-thirds of the school’s graduates go directly into

media and communication careers. Others find that a communications degree prepares them well for graduate school, law school, business opportunities and public service.

Elon University is one of only 18 private colleges and universities in the nation to have an accredited communications program.

For all School of Communications majors:

ACCREDITATION RULE. All students must complete at least 80 credit hours outside the School of Communications, with 65 or more of those hours in the liberal arts and sciences.

REQUIRED INTERNSHIP. All students must complete an off-campus professional internship in communications. Students enroll in COM 381 Communications Internship for one or two credit hours, based on 80 work-hours per credit hour. Students may earn up to a total of four credit hours of COM 381. (COE Co-op Work Experiences credit cannot count toward the major or toward the 80 hours required outside the School of Communications.)

DOUBLE MAJOR. To encourage students to develop a second area of academic depth, the School of Communications waives eight hours of electives for any student completing a double major outside the school. For example, a student double-majoring in Journalism and History would need a total of 44 COM hours instead of the normal 52 hours.

Journalism serves an essential role in democracy by keeping citizens informed about their communities and the world. News and information come in converged forms today – online sites and new media, newspapers and magazines, radio and television.

A major in Journalism (Print/Online News concentration) requires the following courses:

GST	115	Public Speaking	2 sh
COM	100	Communications in a Global Age	4 sh
COM	110	Media Writing	4 sh
COM	220	Digital Media Convergence	4 sh
COM	230	Media History, Media Today	4 sh
COM	310	Reporting for the Public Good	4 sh
COM	320	Editing and Design	4 sh
COM	350	Web Publishing	4 sh
COM	381	Communications Internship	1-2 sh
COM	400	Media Law and Ethics	4 sh
COM	450	Multimedia Journalism	4 sh
COM	495	Great Ideas: Capstone in Communications	2 sh
Choice of additional courses to total at least 52 COM hours			
COMMUNICATIONS TOTAL			52 sh
OVERALL TOTAL			54 sh

A major in Journalism (Broadcast News concentration) requires the following courses:

GST	115	Public Speaking	2 sh
COM	100	Communications in a Global Age	4 sh
COM	110	Media Writing	4 sh
COM	220	Digital Media Convergence	4 sh
COM	234	Broadcasting in the Public Interest	4 sh

COM	311	Broadcast News Writing	4 sh
COM	324	Television Production	4 sh
COM	351	Television News Reporting	4 sh
COM	381	Communications Internship	1-2 sh
COM	400	Media Law and Ethics	4 sh
COM	450	Multimedia Journalism	4 sh
COM	495	Great Ideas: Capstone in Communications	2 sh
Choice of additional courses to total at least 52 COM hours			
COMMUNICATIONS TOTAL			52 sh
OVERALL TOTAL			54 sh

Strategic Communications explores the process and techniques for how an organization communicates with its many publics. The organization may be corporate, non-profit or governmental, and the forms of communication include public relations and advertising.

A major in Strategic Communications requires the following courses:

GST	115	Public Speaking	2 sh
COM	100	Communications in a Global Age	4 sh
COM	110	Media Writing	4 sh
COM	220	Digital Media Convergence	4 sh
COM	232	Public Relations and Civic Responsibility	4 sh
COM	312	Strategic Writing	4 sh
At least one course selected from:			4 sh
COM	322	Corporate Publishing	
COM	323	Corporate Video	
COM	350	Web Publishing	
COM	362	Communication Research	4 sh
COM	381	Communications Internship	1-2 sh
COM	400	Media Law and Ethics	4 sh
COM	452	Strategic Campaigns	4 sh
COM	495	Great Ideas: Capstone in Communications	2 sh
Choice of additional courses to total at least 52 COM hours			
In addition, at least one School of Business course selected from:			4 sh
ECO	111	Principles of Economics	
BUS	303	Introduction to Management	
BUS	304	Introduction to Marketing	
ACC	201	Principles of Financial Accounting	
FIN	303	Introduction to Finance	
COMMUNICATIONS TOTAL			52 sh
OVERALL TOTAL			58 sh

Media Arts and Entertainment focuses on creative storytelling through broadcast, cinema and new media. These art forms can communicate both fact and fiction through words, sounds, images, actions and music.

A major in Media Arts and Entertainment (Broadcast and New Media concentration) requires the following courses:

GST	115	Public Speaking	2 sh
COM	100	Communications in a Global Age	4 sh
COM	110	Media Writing	4 sh
COM	220	Digital Media Convergence	4 sh
COM	234	Broadcasting in the Public Interest	4 sh
COM	314	Writing for Broadcast and New Media	4 sh
COM	324	Television Production	4 sh
At least one course selected from:			4 sh
COM	360	Interactive Media	
COM	361	Media Management and Sales	
COM	362	Communication Research	
COM	381	Communications Internship	1-2 sh
COM	400	Media Law and Ethics	4 sh
COM	454	Producing for Broadcast and New Media	4 sh
COM	495	Great Ideas: Capstone in Communications	2 sh
Choice of additional courses to total at least 52 COM hours			
COMMUNICATIONS TOTAL			52 sh
OVERALL TOTAL			54 sh

A major in Media Arts and Entertainment (Cinema concentration) requires the following courses:

GST	115	Public Speaking	2 sh
COM	100	Communications in a Global Age	4 sh
COM	110	Media Writing	4 sh
COM	220	Digital Media Convergence	4 sh
COM	236	Development and Influence of Cinema	4 sh
COM	316	Screenwriting	4 sh
COM	326	Cinema Production	4 sh
At least one course selected from:			4 sh
COM	355	The Documentary	
COM	356	Cinema Aesthetics	
COM	381	Communications Internship	1-2 sh
COM	400	Media Law and Ethics	4 sh
At least one course selected from:			4 sh
COM	455	Producing the Documentary	
COM	456	Producing Narrative Cinema	
COM	495	Great Ideas: Capstone in Communications	2 sh
Choice of additional courses to total at least 52 COM hours			
COMMUNICATIONS TOTAL			52 sh
OVERALL TOTAL			54 sh

Communication Science explores how people use messages to inform, persuade and entertain. Students apply social science theory and research to contemporary issues in media and professional communications.

A major in Communication Science requires the following courses and completion of a minor outside the School of Communications:

GST	115	Public Speaking	2 sh
COM	100	Communications in a Global Age	4 sh
COM	110	Media Writing	4 sh
COM	220	Digital Media Convergence	4 sh
COM	260	The Process of Communication	4 sh
COM	300	Persuasion	4 sh
At least one course selected from:			4 sh
COM	230	Media History, Media Today	
COM	330	International Communications	
COM	332	Organizational Communications	
COM	362	Communication Research	4 sh
COM	381	Communications Internship	1-2 sh
COM	400	Media Law and Ethics	4 sh
COM	460	Communication Inquiry	4 sh
COM	495	Great Ideas: Capstone in Communications	2 sh
Choice of additional courses to total at least 52 COM hours			
COMMUNICATIONS TOTAL			52 sh
OVERALL TOTAL (depending on chosen minor)			74 sh

OPTIONAL EMPHASIS. Students in any School of Communications major may choose to dedicate two COM electives and complete COM 381 Communications Internship in one of the following emphasis areas:

Writing

- COM 340 Feature Writing
- COM 440 Public Affairs Reporting

Advertising

- COM 338 Advertising in Society
- COM 438 Advertising Techniques

Photojournalism

- COM 328 Photojournalism
- COM 428 Visual Storytelling

Documentary

- COM 355 The Documentary
- COM 455 Producing the Documentary

Sports Communications

- COM 335 Sports and Media
- COM 342 Sports Information or COM 345 Sports Broadcasting

Audio Recording

- COM 354 Audio for Visual Media
- COM 364 Audio for Sound Media

International Communications
 COM 330 International Communications
 Semester Abroad communications course

A minor in Communications requires the following courses:

COM	100	Communications in a Global Age	4 sh
Sixteen additional COM hours, with at least four hours at 300/400 level			16 sh
TOTAL			20 sh

COM 100. COMMUNICATIONS IN A GLOBAL AGE 4 sh

Contemporary media play a vital role in society, both locally and globally. In this course, students study the importance of books, newspapers, magazines, recordings, movies, radio, television and the internet, and the messages carried through news, public relations and advertising. The course emphasizes the relationship of media and democracy, ethical decision-making, the diversity of audiences, and the global impact of communications.

COM 110. MEDIA WRITING 4 sh

Clear, logical writing is necessary to communicate effectively to an audience. This course focuses on background research, interviews, accuracy, attribution and styles of writing (print, broadcast, online, news releases). Grammar and language skills are refined, and Associated Press style is introduced.

COM 220. DIGITAL MEDIA CONVERGENCE 4 sh

Convergence is the blending of text, sounds and images in the media environment to create new media. This course features units on visual literacy, photo editing, audio processing, video editing and web publishing. Students learn theories of aural and visual aesthetics and produce individual web pages. Prerequisite: C- or better in COM 100.

COM 230. MEDIA HISTORY, MEDIA TODAY 4 sh

A free society requires a free and vibrant media. This course examines the development, growth and impact of media in America. It studies the major trends, important personalities, ownership structures, technological advancements, diversity of audiences, the rise of media convergence, and societal impact ranging from colonial newspapers in the 1600s to today's print, broadcast and online media. Prerequisite: C- or better in COM 100.

COM 232. PUBLIC RELATIONS AND CIVIC RESPONSIBILITY 4 sh

Public relations is the bridge between an organization and its many publics. This course emphasizes theories, strategies and techniques in organizational environments (corporate, not-for-profit, associations, agencies, government) and studies historical roots, formation of public opinion, crisis management, marketing and the ethical requirements to be a responsible corporate citizen. Prerequisite: C- or better in COM 100.

COM 234. BROADCASTING IN THE PUBLIC INTEREST 4 sh

Broadcasting was conceived and is regulated to serve the public interest. This course provides a philosophical, historical, technological and social overview of the broadcast industry and its progeny. It focuses on broadcast economics, audience analysis, management, programming, media effects, government policy and FCC regulation in the public interest. Prerequisite: C- or better in COM 100.

COM 236. DEVELOPMENT AND INFLUENCE OF CINEMA 4 sh

The cinema has a rich history as an art form, entertainment medium and business enterprise. This course explores the social influence of cinema, both American and international. Students also study contemporary trends and business models in the film industry. Prerequisite: C- or better in COM 100.

- COM 260. THE PROCESS OF COMMUNICATION** 4 sh
Theories seek to explain how and why we communicate, and with what effects. This course examines communication as a field of study, focusing both on human and mediated communication (news, persuasion, entertainment). In the scientific method, theories provide a way to understand, explain, predict and implement communication processes and events. Prerequisite: C- or better in COM 100.
- COM 262. INTERPERSONAL COMMUNICATION** 2 sh
Interpersonal relationships can be enhanced through the acquisition and development of communication skills. Topics include self-concept, perception, conversation skills and conflict resolution.
- COM 265. SMALL-GROUP COMMUNICATION** 2 sh
The effectiveness of small-group communication can be enhanced through the acquisition and development of skills related to committee, team and work-group processes.
- COM 266. THE LOS ANGELES EXPERIENCE** 4 sh
This course for Communications Fellows provides students an inside look at the media and entertainment industries in Los Angeles. Through visits with production companies and direct interaction with industry leaders, students study the creative process, funding, production and distribution of entertainment products. Prerequisite: Communications Fellows only; application process required.
- COM 286. COMMUNICATIONS ACTING COMPANY** 1 sh
Performing Arts students may earn credit for working as actors for shorts or scenes in cinema and broadcast courses. Prerequisite: THE 115, 120 or 125, an audition, and permission of course instructor. May be repeated up to four times.
- COM 300. PERSUASION** 4 sh
This course explores the factors and techniques that either reinforce or change one's knowledge, attitudes and behaviors as applied to media and communication messages. Students study classical and contemporary strategies, identify accepted rules that guide the decision-making process, and review how source, receiver, situation and message characteristics impact the social influence process. Prerequisite: C- or better in COM 110.
- COM 310. REPORTING FOR THE PUBLIC GOOD** 4 sh
Students become reporters and writers who emphasize accuracy, logic, and the sound and sense of words. Students analyze good journalism and discuss concepts such as civic journalism, the watchdog function of the news media, ethical practice, and journalism's role in serving the public good in a democracy. Prerequisite: C- or better in COM 110.
- COM 311. BROADCAST NEWS WRITING** 4 sh
Students become broadcast reporters and writers for the ear by producing a variety of radio news stories. They analyze good broadcast journalism, audience research, media effects research, ethical standards and industry trends. Prerequisite: C- or better in COM 110.
- COM 312. STRATEGIC WRITING** 4 sh
This course emphasizes the importance of writing in public relations, advertising and media relations. Informative and persuasive methods include news releases, backgrounders, speech writing, employee publications, annual reports, news conferences, multi-media, public service announcements, and oral presentations to a variety of audiences. Prerequisite: C- or better in COM 110.
- COM 314. WRITING FOR BROADCAST AND NEW MEDIA** 4 sh
Writing for radio, television and new media has its own style, form and content approaches. The course focuses on writing news, commercials, public service announcements and other copy for the ear. Students discuss contemporary issues, audience research, media effects research, ethical standards and industry trends. Prerequisite: C- or better in COM 110.

- COM 316. SCREENWRITING** 4 sh
As the heart and soul of cinema, screenwriting requires mastery of story, structure and format. This course helps students harness their imaginations in scripts for cinematic movies, series and shorts. Prerequisite: C- or better in COM 110.
- COM 320. EDITING AND DESIGN** 4 sh
Precision in word usage and style and an aesthetic sense of design are valuable in publications. Students practice crafting content, editing copy, writing headlines, using photos and graphics, writing captions and designing pages. Prerequisite: COM 220.
- COM 322. CORPORATE PUBLISHING** 4 sh
Print and web media (publications, public relations, advertising and the internet) are used to communicate with internal and external publics. This course emphasizes effective visual design and publishing for corporate purposes. Prerequisite: COM 220.
- COM 323. CORPORATE VIDEO** 4 sh
Businesses often use video to communicate with internal and external publics. This course emphasizes achieving an organization's goals through informing, persuading and entertaining. Students focus on research, writing, and both studio and remote video production. Prerequisite: COM 220.
- COM 324. TELEVISION PRODUCTION** 4 sh
Students explore the principles and techniques in television broadcasting and other video media. Studio and field assignments emphasize the aesthetics of television production and the centrality of effective audio. Students research, write and produce news, public service announcements, commercials and entertainment programming. Prerequisite: COM 220.
- COM 326. CINEMA PRODUCTION** 4 sh
This course focuses on digital cinema picture and sound production, highlighting the relationship between technology and artistic form in documentary and narrative production. Students explore cinematic principles and techniques, learn production positions and procedures, and produce a short cinematic work. Prerequisite: COM 220.
- COM 328. PHOTOJOURNALISM** 4 sh
Photojournalism is the visual reporting of news. Students produce digital photojournalism by translating ideas and newsworthy information into visual form. The course emphasizes composition, lighting, storytelling and editing, along with the history of photojournalism and its legal and ethical frameworks. Prerequisite: COM 220.
- COM 330. INTERNATIONAL COMMUNICATIONS** 4 sh
Media systems differ substantially in the Americas, Europe, Asia, Africa and the rest of the world. In this course, students examine the media systems of many countries, stressing the chief problems of communications across cultural, economic, sociological and political barriers.
- COM 331. ENVIRONMENTAL COMMUNICATIONS** 4 sh
The environment is central to our future. Students develop an understanding of environmental issues and communication practices to promote public awareness, change behavior and influence public policy. The class analyzes media coverage of sustainability topics and methods for informing, educating and influencing important target audiences.
- COM 332. ORGANIZATIONAL COMMUNICATIONS** 4 sh
Every organization has its own internal communication patterns and leadership practices. This course addresses the theories and workplace issues related to leadership, teams, interpersonal relations, and organizational culture and strategy. Students analyze leadership and ethical dimensions of communication in organizations.

- COM 333. RELIGION AND MEDIA** 4 sh
 Religion and media are two powerful influences in society. This course analyzes how they intersect through media coverage of religious issues and themes, religion's use of television and the internet, and media portrayals of religious people and traditions.
- COM 334. POLITICS AND MEDIA** 4 sh
 The media have a tremendous effect on the American political system in terms of news coverage, candidate visibility, political messages and the creation of public opinion. This course traces the evolution of media impact to the present day.
- COM 335. SPORTS AND MEDIA** 4 sh
 A symbiotic relationship exists between athletic competition and the media. This course traces the century-old expansion of media coverage of athletics as well as social science research, weighing the capability of the media to participate in shaping and packaging sports content and programming as forms of popular culture.
- COM 336. INTERNATIONAL CINEMA** 4 sh
 Around the world, cinema is a reflection of societies, cultures and the times. This course surveys the development and evolution of selected international cinemas and movements and examines the social, cultural, economic and historic forces that influence, or are influenced by, that evolution.
- COM 338. ADVERTISING IN SOCIETY** 4 sh
 Advertising is a creative communications process between messenger and consumer. This course studies the research foundation and methods used in creating advertising for print, broadcast and online media. Topics include history, ethics, social dynamics, economic implications for society, and the global spread of advertising.
- COM 340. FEATURE WRITING** 4 sh
 Students study writing styles and write feature articles for potential publication. The course applies techniques such as narrative, characterization, dialogue and scenes to nonfiction writing. Prerequisite: COM 110.
- COM 342. SPORTS INFORMATION** 4 sh 101
 This course focuses on the writing and organizational skills essential for journalistic and public relations functions related to collegiate, professional and Olympic sports coverage. The functions of sports information tend to be closely related to media coverage and also can include effective operations of sporting events. Prerequisite: COM 110.
- COM 345. SPORTS BROADCASTING** 4 sh
 Students learn the structure, strategies and techniques of sports broadcasting, which serves the dual role as journalism (an accurate reporting of an event) and as entertainment. The course considers different content and styles of radio and television sportscasting. Assignments include broadcast coverage of athletic events and subsequent critique. Prerequisite: COM 324.
- COM 348. BROADCAST PRESENTATION** 4 sh
 This course emphasizes effective presentation of ideas and information on radio, television and online. Students focus on vocal and visual presentation, voice and diction, pronunciation, appearance, gestures and movement. Prerequisite: COM 220.
- COM 350. WEB PUBLISHING** 4 sh
 Students analyze the effective use of the internet as a publication tool, the importance of web design, and the internet's impact on society. Students experiment with diverse ways of using media such as text, graphics, sound and video to effectively transmit information and data and to interact with users. Prerequisite: COM 220.

- COM 351. TELEVISION NEWS REPORTING** 4 sh
Students research, write, edit and produce television news packages and newscasts as well as analyze current examples of news and public affairs programming. They work as producers, reporters, anchors, editors, videographers and studio production crew for news, sports and information segments in a newscast. Prerequisite: COM 311 and 324.
- COM 354. AUDIO FOR VISUAL MEDIA** 4 sh
Sound is an important element in television, cinema and other visual media. This course analyzes digital audio production concepts and techniques such as on-location recording, post-production, editing sound with pictures, synchronization, automated dialogue replacement, signal processing, and the use of sound effects and music. Prerequisite: COM 220.
- COM 355. THE DOCUMENTARY** 4 sh
Students trace the origins of the documentary and analyze its status today, ranging from news documentaries to nature and travel productions to major artistic documentaries. Students produce projects outside of class. Prerequisite: COM 220.
- COM 356. CINEMA AESTHETICS** 4 sh
Aesthetics refers to the creative use of camera angles, motion, lighting, color, sounds, music, special effects and editing for cinematic impact. This course examines theories of shooting and editing. Students apply these concepts to the production of individual short narrative films. Prerequisite: COM 324 or 326.
- COM 360. INTERACTIVE MEDIA** 4 sh
Students analyze the history and structure of interactive and newer media forms and explore their potential uses. This course experiments with interactive presentations and emerging media, using a media theory framework and models drawn from the fields of cognition and graphic design. Prerequisite: COM 220.
- COM 361. MEDIA MANAGEMENT AND SALES** 4 sh
For media to thrive, they need good management and a steady revenue stream. This course explores the principles of management and sales for print, broadcast and online media. Topics include ownership and regulation, organizational structure, personnel, business models and clients, and how to sell time and space.
- COM 362. COMMUNICATION RESEARCH** 4 sh
Students learn both theoretical and methodological concepts for conducting applied research in communications. This course explores public opinion polling, marketing research and qualitative methods, and highlights surveys, content analysis, focus groups and audience analysis.
- COM 364. AUDIO FOR SOUND MEDIA** 4 sh
Students learn digital audio production concepts and techniques applicable to radio and music recording. Emphasis is given to studio recording techniques such as the nature of sound and acoustics, signal flow, file formats, miking, multi-channel recording and mixing, non-linear editing, signal processing and mastering. Prerequisite: COM 220.
- COM 365. EDITING THE MOVING IMAGE** 4 sh
Students learn the concepts and techniques of digital video editing for broadcast and cinema. The course examines the historical and theoretical evolution of editing, and students complete projects that require mastery of video editing techniques. Prerequisite: COM 220.
- COM 366. NARRATIVE DIRECTING** 4 sh
The director's vision shapes almost every aspect of a story's transformation from page to stage and from stage to screen. Students work with scripts, actors, camera and editing as they practice the art and craft of directing. Prerequisite: COM 316 and 326.

- COM 368. MAGAZINE PUBLISHING** 4 sh
This course examines the magazine publishing industry from its origins to today. Students explore industry trends toward specialization and magazine publishing processes including concept, planning, writing, editing, advertising, production, promotion and distribution of a finished product.
- COM 370-379. SPECIAL TOPICS IN COMMUNICATIONS** 1-4 sh
The School of Communications periodically offers special topics courses. Prerequisite: determined by instructor.
- COM 380. MEDIA WORKSHOP** 1 sh
An on-campus practicum with student media, featuring weekly instruction from a faculty advisor. Prerequisite: approval of department chair. Maximum of four credit hours applied toward major.
- COM 381. COMMUNICATIONS INTERNSHIP** 1-2 sh
An off-campus, professionally supervised internship in journalism, strategic communications, media arts and entertainment, or communication science. Students secure an internship with guidance from the school's internship office and enroll for one or two credit hours, based on at least 80 work-hours per credit hour. An internship involves creation of a student portfolio, reflection assignments and supervisor evaluations. Prerequisite: approval of school's internship director. Maximum of four credit hours applied toward major.
- COM 382. COMMUNICATIONS STUDY ABROAD** 1-4 sh
Students who study abroad may earn credit for specialized study on a communications topic.
- COM 400. MEDIA LAW AND ETHICS** 4 sh
The First Amendment is the philosophical foundation for freedom of speech and press in America. This course distinguishes between forms of communication that have constitutional protection and those with limitations (libel, privacy, copyright, censorship, commercial speech, broadcast licensing, access to information). Students explore the foundations of moral reasoning and apply ethical responsibilities to communications cases.
- COM 406. FILM THEORY, GENRES AND AUTEURS** 4 sh
This course surveys classical and contemporary film theory and critical approaches to the study of film including formalism, realism and expressionism. Students explore film genres (drama, suspense, comedy), auteur directors (those whose vision dominates great movies), and the social, cultural, economic and historic forces at play.
- COM 420. DESIGN AND INFORMATION GRAPHICS** 4 sh
Students focus on effective design, information graphics and photo editing for news and feature outlets. The course analyzes use of type, images and color, and students apply that knowledge to design projects. Prerequisite: COM 320 or 322.
- COM 428. VISUAL STORYTELLING** 4 sh
Multimedia tools are used to produce online visual stories through photojournalism. This course emphasizes advanced photojournalistic technique and methods of evoking emotion. Each student develops a working portfolio. Prerequisite: COM 328.
- COM 438. ADVERTISING TECHNIQUES** 4 sh
Advertising has a creative side as well as a business side. This course focuses on writing advertising copy and merging it with graphic design elements to communicate messages both creatively and effectively. Emphasis is placed on concepts, strategies and presentation style. Prerequisite: COM 338.
- COM 440. PUBLIC AFFAIRS REPORTING** 4 sh
Journalism provides eyes and ears for the public at large. In this advanced reporting course, students concentrate on how best to cover politics, government, business and other

social institutions. Students explore story topics, sources and pitfalls. Prerequisite: COM 310.

COM 450. MULTIMEDIA JOURNALISM 4 sh

Students gather and present news and information in a converged media environment that combines text, graphics, photojournalism, audio and video. Students work as individuals and in teams to write, report and produce online multimedia products. This culminating course in the Journalism major also explores career opportunities. Prerequisite: COM 350 or 351.

COM 452. STRATEGIC CAMPAIGNS 4 sh

Students apply strategies and techniques to create a communications campaign for real clients. In the process, students engage in audience analysis, budget preparation, and development of a strategic plan for corporate, nonprofit, association and/or government clients. This culminating course in the Strategic Communications major also explores career opportunities. Prerequisite: COM 312 and 362.

COM 454. PRODUCING FOR BROADCAST AND NEW MEDIA 4 sh

To attract target audiences, those in broadcast and new media must place importance on program development, message design, production aesthetics and distribution channels. Students produce substantive team or individual projects based on programming strategies and client needs. This culminating course for Broadcast and New Media students also explores career opportunities. Prerequisite: COM 314 and 324.

COM 455. PRODUCING THE DOCUMENTARY 4 sh

This course emphasizes the power of the documentary and its potential to address issues of social significance. Students examine the world of the documentary from initial concept to financing to distribution and produce a substantive documentary. This culminating course for Documentary students also explores career opportunities. Prerequisite: COM 355 or 356.

COM 456. PRODUCING NARRATIVE CINEMA 4 sh

This course examines production management and the business of cinema, focusing on the role of the producer. Students work as screenwriters, directors, cinematographers, editors and in other production roles to create a substantive narrative work. This culminating course for Narrative Cinema students also explores career opportunities. Prerequisite: COM 355 or 356.

COM 460. COMMUNICATION INQUIRY 4 sh

Using a social science perspective, students analyze the role of media and professional communication in society. They pursue important questions, apply theories and observation, cite credible sources, and write a significant paper that reflects the scientific method. This culminating course in the Communication Science major also explores career opportunities. Prerequisite: COM 362.

COM 491. INDEPENDENT STUDY 1-4 sh

Students engage in an academic project outside the domain of existing courses, closely guided by a faculty mentor in the School of Communications. Many students enroll for one or two credit hours; enrollment for three or four credit hours must represent the equivalent of a full and rigorous course. A project proposal form completed by the student and faculty mentor is required for registration. Prerequisite: approval of department chair. Maximum of four credit hours applied toward major.

COM 495. GREAT IDEAS: CAPSTONE IN COMMUNICATIONS 2 sh

Students examine the importance of free expression in a democracy and other great ideas that shape the disciplines of communications. These include trends such as media convergence, the global reach of communications, and the impact of new technologies. Students do an original research project with a paper, or a substantial analytical paper that examines an important idea in communications. The course is the school's primary instrument for

senior assessment. Prerequisite: senior status. Students must pass this course with a grade of C- or better.

COM 499. RESEARCH AND CREATIVE ACTIVITY

1-4 sh

Students engage in original research or creative activity, closely guided by a faculty mentor in the School of Communications. Many students enroll for one or two credit hours; enrollment for three or four credit hours must represent the equivalent of a full and rigorous course. A research proposal form completed by the student and faculty mentor is required for registration. Prerequisite: approval of department chair. Maximum of four credit hours applied toward major.

Computing Sciences

Chair: Professor Powell

Associate Professors: Conklin, Heinrichs, B. Taylor, Yap

Assistant Professors: Duvall, Hightower

Senior Lecturer: Kleckner

Lecturer: Hollingsworth

Adjuncts: Allen, Bryan, Forcht, Joyce

The Department of Computing Sciences at Elon University offers A.B. and B.S. degrees in Computer Science, A.B. and B.S. degrees in Computer Information Systems, and minors in Computer Science and Computer Information Systems. Minors in Multimedia Authoring or Geographical Information Systems are also available options.

The discipline called Computer Science emphasizes problem solving based upon mathematical logic, the analysis of alternative solutions, the use of the scientific method of hypothesis development and testing, and the link between principles, creativity and implementation techniques. The experiences, challenges and discipline of computer science translate well into other areas and interests. The discipline is constantly changing; the student must be able to communicate well and learn new concepts throughout life. The Computer Science program at Elon is a rigorous one emphasizing the application and theory of computation. Students study programming languages, operating systems, algorithm analysis, artificial intelligence, game programming and parallel and distributed problem solving using computer technology.

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The Computer Information Systems discipline centers on the development of systems that will improve the performance of people in organizations. Information systems are vital to problem identification, analysis and decision making. These skills are integral parts of many fields of study. Students in information systems apply problem-solving techniques and programming skills to the design, implementation and maintenance of these information systems. Computer Information Systems at Elon is a hands-on program that gives the student a solid foundation in information systems, including knowledge and skills about networks, Web development, database development, systems analysis, application development and project management.

Computing Sciences students at Elon have excellent access to both faculty and equipment including a wide array of computer hardware and software. The latest versions of over 50 software development tools are updated twice annually. Every computer is replaced every three years. Opportunities for various work and independent learning experiences that complement classroom learning are available. Other opportunities for involvement include the student chapter of the Association for Computing Machinery (ACM), participation in regional and local programming contests and independent study

and research. Graduates pursue employment in many areas of industry, business, education and government as well as continuing study at the graduate level.

A Bachelor of Arts degree in Computer Science requires the following courses:

CSC	130	Computer Science I	4 sh
CSC	230	Computer Science II	4 sh
CSC	330	Computer Science III	4 sh
CSC	331	Algorithm Analysis	4 sh
CSC	335	Programming Languages	4 sh
CSC	342	Computer Systems	4 sh
CSC	442	Mobile Computing	4 sh
CSC	462	Software Development/Capstone	4 sh
MTH	206	Discrete Structures	4 sh
Select one course from the following:			4 sh
MTH	221	Calculus and Analytic Geometry II	
MTH	306	Applied Matrix Theory	
Select one course beyond core math requirement			4 sh
Probability/Statistics: if core math requirement was MTH 121, then MTH 112 General Statistics or a probability and/or statistics course			
or			
Quantitative Analysis: if core math requirement was MTH 112, then MTH 121 Calculus and Analytic Geometry I			
Two courses from the following:			8 sh
CSC	410	Artificial Intelligence	
CSC	415	Numerical Analysis	
CSC	420	Game Programming and Computer Graphics	
CSC	430	Advanced Programming Concepts	
CSC	431	High Performance Computing	
CSC	499	Research	
CSC 300-400 level elective			
TOTAL			52 sh

A Bachelor of Science degree in Computer Science requires the following courses:

CSC	130	Computer Science I	4 sh
CSC	230	Computer Science II	4 sh
CSC	330	Computer Science III	4 sh
CSC	331	Algorithm Analysis	4 sh
CSC	335	Programming Languages	4 sh
CSC	342	Computer Systems	4 sh
CSC	442	Mobile Computing	4 sh
CSC	462	Software Development/Capstone	4 sh
MTH	206	Discrete Structures	
Select one course from the following:			4 sh
MTH	221	Calculus and Analytic Geometry II	
MTH	306	Applied Matrix Theory	

Select one course beyond core math requirement	4 sh
Probability/Statistics: if core math requirement was MTH 121, then MTH 112 General Statistics or a probability and/or statistics course	
or	
Quantitative Analysis: if core math requirement was MTH 112, then MTH 121 Calculus and Analytic Geometry 1	
Three courses from the following:	12 sh
CSC 410 Artificial Intelligence	
CSC 415 Numerical Analysis	
CSC 420 Game Programming and Computer Graphics	
CSC 430 Advanced Programming Concepts	
CSC 431 High Performance Computing	
CSC 499 Research	
CSC 300-400 level elective	
Either:	8 sh
CHM 111, 112, 113, 114, or	
PHY 113, 114, 117, 118, or	
BIO 111, 112, 113, 114	
<hr/> TOTAL	64 sh

A Bachelor of Arts in Computer Information Systems requires the following courses:

CIS 216	Programming in a Visual Environment	4 sh
CIS 245	Operating Systems and Networks	4 sh
CIS 301	Database Management and Analysis	4 sh
CIS 330	Systems Analysis and Design	4 sh
CIS 430	Project Implementation and Management	4 sh
MTH 206	Discrete Structures	4 sh
Elective chosen from any 300/400 level courses in CIS or CSC 230		4 sh
Twelve hours from one of the following concentrations:		12 sh

Web Development

CIS 310	User-Centered Web Design
CIS 325	Web Development
CSC 130	Computer Science I

Enterprise Networks

CIS 211	Management Information Systems
CIS 320	Building Collaborative Environments
CIS 345	Network Design and Security

Select one course beyond core math requirement	4 sh
Probability/Statistics: if core math requirement was MTH 121, then MTH 112 General Statistics or a probability and/or statistics course	
or	
Quantitative Analysis: if core math requirement was MTH 112, then MTH 116 Applied Calculus or MTH 121 Calculus and Analytic Geometry I	
<hr/> Total	44 sh

A Bachelor of Science in Computer Information Systems requires the following courses:

CIS	216	Programming in a Visual Environment	4 sh
CIS	245	Operating Systems and Networks	4 sh
CIS	301	Database Management and Analysis	4 sh
CIS	330	Systems Analysis and Design	4 sh
CIS	430	Project Implementation and Management	4 sh
MTH	206	Discrete Structures	4 sh
Elective chosen from any 300/400 level courses in CIS or CSC 230			4 sh
Twelve hours from one of the following concentrations:			12 sh

Web Development

CIS	310	User-Centered Web Design	
CIS	325	Web Development	
CSC	130	Computer Science I	

Enterprise Networks

CIS	211	Management Information Systems	
CIS	320	Building Collaborative Environments	
CIS	345	Network Design and Security	
Select one course beyond core math requirement			4 sh
Probability/Statistics: if core math requirement was MTH 121, then MTH 112 General Statistics or a probability and/or statistics course			
or			
Quantitative Analysis: if core math requirement was MTH 112, then MTH 116 Applied Calculus or MTH 121 Calculus and Analytic Geometry I			
Information Systems Environment: Select any four courses from the Business Administration minor			16 sh
Total			60 sh

A minor in Computer Science requires the following:

CSC	130	Computer Science I	4 sh
CSC	230	Computer Science II	4 sh
Eight semester hours of 300-400 level Computer Science (CSC) courses			8 sh
One additional course from CSC or CIS at the 200 level or above			4 sh
Total			20 sh

A minor in Computer Information Systems requires the following:

CIS	216	Programming in a Visual Environment	4 sh
CIS	245	Operating Systems and Networks	4 sh
CIS	301	Database Management and Analysis	4 sh
At least one course from the following:			4-8 sh
CIS	325	Web Development	
CIS	330	Systems Analysis and Design	
CIS	345	Network Design and Security	

At most one course from the following:		0-4 sh
CIS	211	Management Information Systems
CIS	310	User-Centered Web Design
CIS	320	Building Collaborative Environments
CSC	130	Computer Science I
<hr/> Total		20 sh

A Bachelor of Arts degree in Computer Science/Engineering: See requirements listed under Engineering.

Multimedia Authoring Minor: See Multimedia Authoring

Geographic Information Systems Minor: See Geographic Information Systems

Computer Information Systems

- CIS 112. PROBLEM SOLVING WITH SPREADSHEET APPLICATIONS** 2 sh
 This course involves projects requiring quantitative reasoning. Microsoft Excel is used for what-if analysis and graphical presentation of data. Fundamental functions, worksheet database features and the use of Excel to create static and dynamic Web pages are covered. Prerequisite: None. Offered when demand is sufficient.
- CIS 113. INTRODUCTION TO DATABASE SYSTEMS** 2 sh
 This course uses a personal database system (Microsoft Access) to implement projects requiring the organization, manipulation and retrieval of data. Students learn how to analyze and present their data using forms, reports and views. Basic and advanced techniques for data retrieval using elementary SQL and joining multiple tables are covered. No credit for students with CIS 211. Prerequisite: None. Offered when demand is sufficient.
- CIS 114. INTRODUCTION TO WEB SITE DEVELOPMENT** 2 sh
 This course develops projects which require the organization and presentation of information on Internet Web sites using HTML and a high-level tool. Prerequisite: None. Offered when demand is sufficient.
- CIS 211. MANAGEMENT INFORMATION SYSTEMS** 4 sh
 This course provides an introduction to the fundamentals of Information Systems (IS) in organizations. The course examines the role of computers, databases, networking and application software in managing the business organization and examines their integration with other functions such as production, marketing and finance. The fundamentals of business-process modeling are explored using process flow diagrams. Basic database management is presented to understand the design of tools for organization, manipulation and retrieval of data. The ethical, strategic and global aspects of Information Systems are explored. Prerequisite: None. Offered fall and spring.
- CIS 216. PROGRAMMING IN A VISUAL ENVIRONMENT** 4 sh
 This course utilizes a programming language with a visual development environment to implement computer applications. Common visual and data objects are incorporated into projects. Code is developed to respond to events induced on these objects by users or other code. Students design and present group and individual projects. Prerequisite: core math requirement or permission of the instructor. Offered fall and spring.
- CIS 220. COMPUTERS AND TEACHING** 3 sh
 This course is designed for students who are planning to teach at the elementary, middle or secondary level and provides an introduction to the role of technology in teaching and learning in K-12 schools. The course provides opportunities for students to develop basic skills in using technology and in selecting and applying technology appropriately to

enhance teacher productivity and student learning. Prerequisite: EDU 211. Offered fall and spring.

CIS 245. OPERATING SYSTEMS AND NETWORKS 4 sh

This course introduces the fundamental concepts of operating systems and networks needed for today's client-server and distributed processing environments. Topics include resource and device management, process scheduling, and network connectivity. Students use current network operating systems to solve installation, configuration and maintenance problems involving hardware and software. Not available to students who have already completed CSC 342. Prerequisite: Core math requirement. Offered fall.

CIS 301. DATABASE MANAGEMENT AND ANALYSIS 4 sh

This course focuses on designing, implementing and using database systems with emphasis on relational and object-relational models. Students design and deploy relational database models. Students will learn SQL and will be able to design complex reports and queries to answer business problems. This course also provides a short introduction to basic concepts of data analysis and data mining using simple descriptive statistics and SQL. Prerequisite: CIS 216 or CSC 130. Offered spring.

CIS 310. USER-CENTERED WEB DESIGN 4 sh

This course provides a complete overview of Web development, including theories of information architecture and user interface design. Students will develop Web sites of medium complexity after learning the basics of page markup and interactive Web programming. Prerequisite: None. Offered spring.

CIS 320. BUILDING COLLABORATIVE ENVIRONMENTS 4 sh

This course examines tools for knowledge sharing and content development, such as intranets, weblogs, instant messaging and content management systems. Students will gain an understanding of knowledge management techniques and applications through laboratory assignments, case studies and discipline-based research. Prerequisite: Sophomore standing or higher. Offered fall.

CIS 325. WEB DEVELOPMENT 4 sh

This course provides a complete overview of the Web site development process. Students will create complex, interactive Web sites. Prerequisite: CIS 301. Offered fall.

CIS 330. SYSTEMS ANALYSIS AND DESIGN 4 sh

This in-depth study of standard techniques for analyzing and designing information systems (IS) emphasizes effective written and oral communication as students examine a system using a realistic business scenario. Appropriate CASE tools (Visible Analyst and/or Visio) are used during the analysis phase. Visual Basic, Crystal Reports and Access are used during the implementation phase to create a simulated software application. Prerequisite: CIS 301. Offered fall.

CIS 345. NETWORK DESIGN AND SECURITY 4 sh

This course focuses on the design of networks for data and voice communications. Topics include data communications protocols and standards, local and wide area network design alternatives, voice transmission and security planning. Students gain hands-on experience using tools to diagram network designs and simulate network performances. Prerequisite: CIS 245 or CSC 342. Offered spring.

CIS 371. SPECIAL TOPICS 1-4 sh

Topics such as decision support and expert systems, data communications and networks, and design patterns are offered when demand is sufficient.

CIS 430. PROJECT IMPLEMENTATION AND MANAGEMENT 4 sh

Project teams identify a business situation requiring information systems (IS) improvement. Concepts and tools for analysis and design methodology are applied. The team carries this design through the implementation phase using appropriate CASE tools. This

project is more in-depth than the simulation of CIS 330. Project documentation is presented in the form of a user's manual. Several class presentations are required throughout the semester, culminating with the final working software application. Prerequisite: CIS 330. Corequisite: CIS 345. Offered spring.

- CIS 450. SEMINAR IN INFORMATION SYSTEMS** 4 sh
The capstone experience for senior CIS majors involves a close review of the conceptual and theoretical foundations of the discipline. Contemporary issues, problems and trends in CIS are discussed. Students will complete a major research paper and presentation. Prerequisites: Senior standing and at least one 300-level CIS course. Offered spring.
- CIS 465. MIS STRATEGIES FOR E-BUSINESS** 4 sh
The MIS capstone course explores tactical and strategic management of information systems (IS) at the business unit and enterprise level. Students examine current IS issues facing specific industries — healthcare, banking and retail and also explore management of IS on a global scale and within various countries/regions. The course involves a project focused on design and development of an e-Business software application. Prerequisite: CIS 325 or CIS 330. Offered spring.
- CIS 481. INTERNSHIP IN INFORMATION SYSTEMS** 1-4 sh
Advanced work experiences in computer information systems (CIS) are offered on an individual basis when suitable opportunities can be arranged. Prerequisites: permission of instructor.
- CIS 491. INDEPENDENT STUDY** 1-4 sh
- CIS 499. RESEARCH** 1-4 sh
Students engage in undergraduate research under the direction of a computing sciences faculty member. Maximum of eight semester hours total credit. Prerequisite: Eligibility as determined by the undergraduate research guidelines of Elon University and approval by the department.

Computer Science

- CSC 111. BREAKING THE CODE** 4 sh
This course “breaks the code” and mystique of computing for non-majors. A broad range of topics may be covered, including logical problem solving, the history of computing, the organization of data, social and ethical issues, and current research in computer science. Offered spring.
- CSC 130. COMPUTER SCIENCE I** 4 sh
This introduction to programming and problem solving emphasizes applications from quantitative disciplines and incorporates weekly group practicum experiences. Offered fall and spring.
- CSC 171. SPECIAL TOPICS** 1-4 sh
Students study specialized pieces of software and programming languages. Prerequisite: CSC 130.
- CSC 230. COMPUTER SCIENCE II** 4 sh
This course continues the study of object-oriented programming with an emphasis on graphical user interfaces, event handling, inheritance, polymorphism, basic data structures, software engineering, recursion and the social context of computing. Prerequisite: CSC 130. Offered fall and spring.
- CSC 330. COMPUTER SCIENCE III** 4 sh
This course introduces concepts and methodologies to design and implement a distributed, multi-tier application. Students will cover advanced java features and look at advanced graphical user interface topics, multithreading, networking, java database connectivity and web applications. Prerequisite: CSC 230. Corequisite: MTH 206. Offered fall.

- CSC 331. ALGORITHM ANALYSIS** 4 sh
Students analyze structures and appropriate algorithms to determine the amount of resources necessary to execute the algorithm. Students will explore algorithmic approaches for problem solving and theoretical techniques for arguing efficiency. Prerequisite: CSC 230, MTH 206. Offered spring.
- CSC 335. PROGRAMMING LANGUAGES** 4 sh
This course provides an introduction to the theory and practice of formal languages. The topics of automata theory, grammar formalisms and Turing machines provide the theoretical foundation for practical issues such as data typing, control structures and parameter passing. Programming assignments involve the use of several languages. Prerequisite: CSC 230, MTH 206. Offered spring.
- CSC 342. COMPUTER SYSTEMS** 4 sh
This course involves the study of the basic building blocks of modern computer systems. Topics include digital logic, machine-level representation of data, assembly-level organization, operating system primitives and concurrency. Prerequisite: CSC 230. Corequisite: MTH 206. Offered fall.
- CSC 351. THEORY OF COMPUTATION** 4 sh
In this introduction to theoretical computer science and analysis of discrete mathematical structures which find application in computer science, topics may include predicate calculus, groups, coding theory, graphs, trees, formal languages, grammars, finite state automata, Turing machines and complexity theory. CSC 351 is cross-listed with MTH 351. Prerequisites: CSC 130, MTH 121, 206. Corequisite: CSC 230. Offered when demand is sufficient.
- CSC 371. SPECIAL TOPICS** 1-4 sh
Topics such as genetic programming, grid computing, decision analysis, design of database management systems, robotics, simulation and high-performance computing are offered when demand is sufficient.
- CSC 410. ARTIFICIAL INTELLIGENCE** 4 sh
This course is an introduction to the area of Artificial Intelligence systems. Students will learn concepts of knowledge representation, reasoning, acting under uncertainty and learning. Applications studied will include game playing, natural language and expert systems. Prerequisite: CSC 331. Offered fall alternating years.
- CSC 415. NUMERICAL ANALYSIS** 4 sh
(Cross-listed with MTH 415.)
- CSC 420. GAME PROGRAMMING AND COMPUTER GRAPHICS** 4 sh
A study of two major areas of programming video games: graphics and gaming. Students will learn the fundamentals of two- and three-dimensional graphic programming, including object transformations, ray tracing, collision detection and animation as well as the components of gaming, including intelligent game playing, types of games and creating engaging storylines. Prerequisite: CSC 335. Offered fall alternating years.
- CSC 430. ADVANCED PROGRAMMING CONCEPTS** 4 sh
This course will focus on advanced programming concepts beyond the core computer science material. The material in the course continually evolves guided by the needs of students, the expertise of faculty members and technology trends. Currently, the course focuses on developing enterprise level, multi-tier distributed applications. The course explores the major technologies used by server side applications. Using a commercial application server, students will design and implement a significant programming project using either Enterprise JavaBeans or WebServices. Prerequisites: CSC 330, CSC 331. Offered spring alternating years.

- CSC 431. HIGH PERFORMANCE COMPUTING** 4 sh
 This course gives an introduction to high performance computing and its applications within science and engineering. The main emphasis of the course is on techniques and tools for efficiently solving large and computationally intensive problems on parallel computers. Prerequisite: CSC 331, CSC 342. Offered spring alternating years.
- CSC 442. MOBILE COMPUTING** 4 sh
 This course introduces the emerging field of mobile and wireless computing. This course will cover a range of topics including wireless networking, location-aware computing, ad-hoc networks and the development of software for mobile devices. Prerequisite: CSC 330, CSC 342. Offered spring.
- CSC 462. SOFTWARE DEVELOPMENT/CAPSTONE** 4 sh
 This capstone course combines a range of topics integral to the specification, design, implementation and testing of a medium-scale software system. In addition to material on software engineering, the course includes material on human computer interaction and on professionalism and ethical responsibilities in software development. Prerequisites: CSC 330, CSC 335. Offered fall.
- CSC 481. INTERNSHIP IN COMPUTER SCIENCE** 1-4 sh
 Advanced work experiences in Computer Science are offered on an individual basis when suitable opportunities can be arranged. Prerequisites: permission of instructor.
- CSC 491. INDEPENDENT STUDY** 1-4 sh
- CSC 499. RESEARCH** 1-4 sh
 Students engage in undergraduate research under the direction of a computing sciences faculty member. Maximum of eight semester hours total credit. Prerequisite: Eligibility as determined by the undergraduate research guidelines of Elon University and approval by the department.

Cooperative Education

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Director of Experiential Education: Assistant Professor P. Brumbaugh
Assistant Professors: Donathan, Kosusko, Martin, Olive-Taylor

The Career Center offers courses designed to acquaint Elon students with the career decision-making process, to assist them in career exploration and prepare them for the job search.

- COE 110. EXPLORING CAREERS/MAJORS** 1 sh
 This class assists students in exploring majors and careers. Topics include personal values and needs assessment, interest and skill inventories, and career decision-making skills. Recommended for freshmen and sophomores. Offered fall and spring in a half-semester format.
- COE 310. TRANSITION STRATEGIES** 1 sh
 This course helps students prepare for internships, co-ops, summer jobs and permanent employment. Students develop strategies to achieve career goals, investigate critical issues in the workplace, develop a resume and a cover letter and learn how to network and interview effectively. Recommended for sophomores, juniors and seniors. Offered fall and spring in a half-semester format.
- COE 381-386. CO-OP WORK EXPERIENCE** 1-16 sh
 This series of courses involves careful monitoring of students in either a part-time or full-time work experience. Students apply classroom theory in a job related to their major/minor/career objectives. Prerequisite: admission to the program.

The Cooperative Education Work Experience program enables qualified students to combine classroom theory with professional work experience while completing their degrees. The student may work full time or part time with an employer selected and/or approved by the university. Credit hours are based on the number of hours worked during the term — a maximum of 16 semester hours of internship/cooperative education credits may be applied to the 132 semester hours required for the A.B. and B.S. degrees. Evaluation is based on reported job performance and student reflection on that performance through papers, journals, seminars, class presentations and readings. Contact the Director of Experiential Education for more information.

ELIGIBILITY REQUIREMENTS: Sophomore, junior or senior standing; minimum 2.0 GPA; approval of faculty/Experiential Education Director. COE 310 class recommended.

Criminal Justice Studies

Coordinator: Associate Professor McClearn

The Criminal Justice Studies program engages students in the interdisciplinary study of crime and criminal justice, primarily within the United States. Students gain an understanding of the psychological and sociological dimensions of crime as well as insights into the workings of the criminal justice system and its components. Students examine both academic and applied aspects of the field. Ethical implications and critical analysis of issues are stressed.

The most common majors for students who minor in Criminal Justice Studies are psychology, human services, sociology and political science. However, students have found that the Criminal Justice Studies minor can serve as a valuable complement to a wide array of majors, including journalism, biology, business, and philosophy.

Students in criminal justice are encouraged to engage in experiences that move beyond the classroom, such as internships, research, and independent study. Internships taken in applied settings such as local law enforcement agencies, prisons, the court system, law offices, and a medical examiner's laboratory have proven exciting and educationally beneficial to criminal justice minors. In collaboration with relevant faculty, students have conducted research and independent study on a diverse array of topics, including punitiveness toward criminals, illicit drug use, police personality, psychopathology and crime, serial killers, and the relevance of thinking styles and personality traits to violent behavior.

Students are also encouraged to participate in the Crime Studies Club, a student organization involved in a host of activities related to crime and the criminal justice system. Members of the club have organized field trips to such places as forensics laboratories and prisons. Additionally, the club has hosted nationally prominent experts who have spoken on such topics as designer drugs, forensic science, and the profiling of serial killers, as well as career opportunities in the realm of criminal justice.

Many Criminal Justice Studies minors choose to continue their education after obtaining the bachelor's degree from Elon University. They have entered graduate programs in sociology, political science, social services, psychology, forensic science, criminal justice, law, and others. Students who choose to enter a career upon graduation have found employment in law enforcement (at the local, state, or federal level), prisons, and social work.

A minor in Criminal Justice Studies requires the following:

PSY	357	Criminal Behavior	4 sh
SOC	355	Criminology	4 sh
HUS	359	Criminal Justice	4 sh

Eight semester hours of electives selected from the following: 8 sh

CJS 371-9	Special Topics in Criminal Justice
CJS 481	Internship in Criminal Justice
CJS 491	Independent Study
CJS 499	Research
PHL 341	Philosophy of Law
POL 324	Civil Liberties
SOC 342	Social Deviance

Other courses as approved by the program coordinator

TOTAL 20 sh

CJS 371-379. SPECIAL TOPICS IN CRIMINAL JUSTICE 2-4 sh

A series of courses reflecting new contributions to the Criminal Justice field and in-depth treatments of topics of special interest, such as terrorism and organized crime. Prerequisites: junior standing and at least one core course, or permission of the instructor. Courses may be cross-listed with other disciplines.

CJS 481. INTERNSHIP IN CRIMINAL JUSTICE 2-4 sh

Students apply classroom knowledge to a law enforcement setting. Internships in a criminal justice setting taken from other disciplines might substitute for CJS 481; approval for any such substitutions must be obtained from program coordinator before registration. Prerequisites: junior standing, at least one core course and approval of instructor and program coordinator.

CJS 491. INDEPENDENT STUDY 1-4 sh

Advanced study on a topic of special interest. Prerequisites: junior standing, at least one core course and approval of instructor and program coordinator.

CJS 499. RESEARCH 1-4 sh

In collaboration with a faculty member, students undertake an empirical or theoretical study of a topic in the realm of Criminal Justice studies. Research projects may include a review of the relevant research literature, data collection and analysis, and a presentation or report when the study is completed. Prerequisites: junior standing, at least one core course and approval of instructor and program coordinator. A research proposal form completed by the student in conjunction with the faculty member is required for registration.

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Dance

*Chair, Department of Performing Arts: Associate Professor Rubeck
Professor: McNeela*

Associate Professors: Becherer, Gang, Sabo, J. Smith, Wellford

Assistant Professors: Bower, Formato, Kearns, Webb

Adjuncts: Hutchins, Medler, Roberts, N. Wheeler

The Department of Performing Arts offers a Bachelor of Fine Arts in Dance Performance and Choreography and a minor in Dance. The program gives students a 21st century dance education with a focus on technical training, creative exploration, compositional skills, somatic knowledge, collaborative dance-making and multi-disciplinary performance. The Dance program recognizes the importance of an individual's interac-