

## **COURSE DESCRIPTIONS HEALTH SCIENCES MAJOR HEALTH CARE INFORMATICS OPTION**

---

**BIO 160** - **Introduction to Animal Biology** (5 cr) - Anatomy, physiology, adaptation, and classification of animals; morphology and anatomy of various types of animals. Three hours lecture, three hours lab per week. Additional two-hour test sections four times during the semester.

**BIO 285** - **Human Physiology** (4 cr) - Normal functions of organ systems in humans; fulfills the physiology requirements for biology, human development and nutritional sciences, physical education majors, and is recommended for students with preprofessional interests in medical or allied health fields. Three hours lecture, three hours lab per week. Prereq: 160; or 101 and Chemistry 101.

**CHEM 105** - **Fundamental Chemistry** (5 cr) - (Two semester basic course) Fundamental principles and theories of chemistry, including stoichiometry, atomic and molecular structure and bonding, nuclear chemistry, thermodynamics, descriptive chemistry of nonmetals and transition metals, chemical kinetics and equilibria, introduction to organic chemistry. 3 hrs lec, 1 hr disc, 3 hrs lab per wk. Prereq: Math 90 or placement in 100 or above.

**CLS 105** - **Evolution of Health Care and Health Care Professions** (3 cr) - Study of the history of medicine and the evolution of health care professions in the context of philosophical and cultural influences; examination of various health care systems; analysis of current health care system and health professions in the United States. 3 hrs lecture per week.

**CLS 295** - **Medical Terminology** (2 cr) - Examination of bases of medical terms: prefixes, suffixes, roots, combined forms; terms that name the nine basic body systems and organs. 2 hrs lecture per week.

**CLS 495** - **Research Design and Methods in Clinical Laboratory Science** (1 cr) – Apply scientific method to clinical laboratory research problems; explore research design principles; write research proposals; design research project. 1 hr lecture per week. Prereq: Admission to the professional program.

**HS 105** - **Survey of Common Diseases** (3 cr) - This course examines major disease categories such as infectious disease, cancer, stroke, and heart disease. Basic physiology, causes, risk factors, and prevention are explored within the context of public health.

**HS 350** - **Leadership and Management in Health Care** (3 cr) - Interdisciplinary analysis of leadership theory, including concepts of working cooperatively, effective communication, conflict resolution, fiscal responsibility, human resource development, time management, building strategic alliances, and outcomes assessment. Pre-req: CLS 105; HS 105.

**HS 395** - **Fundamentals of Epidemiology** (3 cr) - Introduction to basic principles and methods of epidemiology and their application to health care delivery. Areas include a historical perspective of epidemiology, measures of disease occurrence and association, clinical epidemiology, disease screening, causal inference, and study design. Pre-req: HS 390; MATH 355.

**HS 410** - **Issues in Aging** (3 cr) - Interdisciplinary focus on gerontology, outlining associated health issues and their impact on families and caregivers. Areas examined include demographics, roles and responsibilities, relationships within families, socioeconomic concerns, and barriers to health care. Pre-req: HS 390; POLI 306.

**HS 490 - Interdisciplinary Perspectives in Health Care** (3 cr) - Many health care situations, particularly the complex, require the expertise and contributions of a team of health care professionals. Using case studies, the student will critically analyze health care situations from the physical, psychological, socioeconomic, legal, and political standpoints, relating their impact on a variety of health care roles. Pre-req: CLS 105; HS 105; HS 390; HS 350.

**HS 499 - Selected Topics in Health Sciences** (1 cr) - Students will choose from a group of topics within their chosen health care option of study and will work on an independent project while under the supervision of a member of the HS faculty. Pre-req: HS 390; junior-level standing.

**ACCT 210 - Introductory Financial Accounting** (3 cr) - Principles, concepts, and procedures of financial accounting essential to the preparation, understanding, and interpretation of accounting information. Prereq: sophomore standing.

**ACCT 211 - Introductory Managerial Accounting** (3 cr) - Decision-making process using managerial accounting information; cost-volume-profit analysis, cost accounting systems, budgeting, and performance evaluations. May not earn credit in both 211 and 320. Prereq: 210 or cons instr.

**CIS 110 - Object-Oriented Programming** (4 cr.) - Introduction to object-oriented programming paradigm; definition and use of classes; fundamentals of object-oriented design; development of object-oriented programming language principles; coding in an object-oriented meta language; coding in a current object-oriented programming language.

**CIS 120 - Data Structures and Algorithms (formerly 211)** (4 cr.) - Introduction to fundamental concepts of data structures and algorithms that proceed from them. Includes recursion, underlying philosophy of object-oriented programming, fundamental data structures, basics of algorithmic analysis. Coding and testing of representative algorithms. Prereq: 110 or WDMD 111; con reg in Math 209.

**CIS 210 - Database Design and Implementation (formerly 219)** (4 cr.) - Analyze and design databases to support computer-based information systems. Develop and program relational database management systems using SQL. Prereq: 120.

**CIS 220 - Object-Oriented Analysis and Design (formerly 323)** (4 cr.) - Analyze and design a software system using object-oriented paradigm and object-oriented systems development life cycle as framework. Activities done in context of semester-long systems application case study. Prereq: 210, English 102 or 150, Comm 101.

**CIS 310 - Production Programming (formerly 313)** (4 cr.) - Detailed study of syntax and logic of the language. Apply a programming language to professional situations. Individual and team projects. Subtitle will indicate language. May repeat for credit under different subtitles. Prereq: 220 or WDMD 312.

**MATH 100 - College Algebra** (3 cr) - Functions, solutions and graphs of linear and quadratic equations, inequalities and systems of equations; logarithmic and exponential functions. Prereq: 051 or suitable placement test score.

**MATH 209 - Mathematics for Information Sciences** (4 cr.) - Boolean algebra, relational database theory, algorithms, combinatorics, discrete probability, recursion, graph theory, network flows and applications for information sciences. Prereq: 100 and con reg in CIS 120.

**MATH 355 - Elementary Statistical Methods** (4 cr) - Fundamental concepts and techniques which underlie applications to the various disciplines, including descriptive statistics; averages; dispersion; random sampling; binomial, normal, Student T, Chi-square, and F distributions; estimation and tests of hypothesis; linear regression and correlation; laboratory emphasis on sampling and applications. Prereq: 100 or a suitable placement test score.

### **Web and Digital Media Development Option -**

**WDMD 100 - Creativity and the Arts.** 3 cr. Creation across artistic media and genres. Nature of artistic experience as expressed in art, theatre, dance, music, film, video, and computer media. GDR:HU1

**WDMD 110 - Introduction to Object-Oriented Computing.** Introduction to the object-oriented paradigm. Development of object-oriented principles including objects, properties, classes, abstraction, aggregation, inheritance, encapsulation and polymorphism. Coding in an object-oriented meta language. Can not receive credit in both WDMD 110 and CIs 110.

**WDMD 111 - Introduction to Object-Oriented Programming.** 2 cr. Development of object-oriented programming techniques using objects, properties, classes, abstraction, aggregation, inheritance, encapsulation and polymorphism. Coding in an object-oriented language. Can not receive credit in both WDMD 111 and CIS 110. Prereq: 110.

**WDMD 200 - Introduction to Computer Graphics.** 3 cr. Survey of three common varieties of software used in Web and multimedia development, including raster-based, vector-based, and motion-software. Prereq: 100 or con reg.

**WDMD 201 - Introduction to Digital Media Creation.** 3 cr. Examine core concepts related to digital media creation, including graphics, audio, video and the multimedia development process. Prereq: 200.

**WDMD 202 - Digital Image Development.** 3 cr. Use advanced graphics and animation tools to develop digital images. Prereq: 200.

**WDMD 210 - Web Design and Development I.** 3 cr. Fundamental principles and techniques of web development, user-centered web design, and basic project management. Topics include (X)HTML, CSS, basic JavaScript, and tools for developing Web applications including code, graphics, and basic multimedia. Prereq: 110 or CIS 110.

**WDMD 211 - Web Design and Development II.** 3 cr. Concepts of client-side programming of web applications. Introduction to one or more Web-centered languages including JavaScript and XML. Prereq:210.

**WDMD 300 - Applied Web Development.** 3 cr. Introduction and applied use of Web design tools; emphasis on practical Web development strategies and industry best practices. Does NOT count toward WDMD major or minor. May not earn credit in both 270 and 300.

**WDMD 301 - Internet Languages.** 4 cr. Concepts of programming Web applications; introduction to one or more Web programming languages. Prereq: 270.

**WDMD 302 - Multimedia Authoring.** 3 cr. Develop and create digital media including video, audio, animation. Prereq: 201.

**WDMD 312 - Web Design and Development III.** 3 cr. Concepts of server-side programming of Web applications. Introductions to one or more Web-centered languages including PHP and SQL database. Prereq: 211.

**WDMD 345 - Advanced Media Development Tools.** 3 or 4 cr. Use professional software tools for digital media development. Subtitle will indicate tool(s) and number of credits. Prerequisite will be determined at time of offering based on subtitle. Does not count for Technical focus of WEDMD major.

**WDMD 346 - Contemporary Topics in Web and Digital Media.** 3 or 4 cr. Examine contemporary and emerging topics in Web and digital media. Subtitle will indicate topic and number of credits. Prerequisite will be determined at time of offering based on subtitle. May repeat for credit with different subtitles. 3 cr max toward design focus of WDMD major. Does not count for Technical focus of WDMD major.

**WDMD 360 - Digital Audio and Video Production.** Nonlinear audio and video production techniques including storyboarding, scene visualization, and editing. Prereq: 302.

**WDMD 362 - Digital Portfolio Development.** 3 cr. Advanced examination and application of professional digital portfolio components and processes. Develop, refine and present artifacts that relate to digital media design and development. Prereq: 302 and jr st.

**WDMD 364 - 3-D Computer Graphics.** 3 cr. Develop 3-D computer modeling skills as well as introductory animation skills. Theory of design principles including scale and proportion, 3-D composition, color, etc. as applied to 3-D computer-simulated environments. Prereq: 201, 202.

**WDMD 365 - Digital Game Development.** 3 cr. Exploration of the theory, design, and development of games and simulation for the Web through the use of animation and interactive programming. Prereq: 364.

**WDMD 368 - Advanced Digital Image Development.** 3 cr. Development of advanced skills and techniques for visual storytelling across client-required media including print, web, and multimedia. Prereq: 202.

**WDMD 397 - Internship in Web and Digital Media Development.** 1-3 cr. Participate in supervised training work program that you arrange with your advisor at a cooperating organization. Advisor and chair determine credits. May repeat for 3 cr max. Does not count for Technical focus of WDMD major. Prereq: Cons chair.

**WDMD 399 - Independent Study.** 1-3 cr. Independent study/project development in Web and/or digital media. Advisor and chair determine credits. May repeat for 3 cr. Max. Does not count for Technical focus of WDMD major. Prereq: Cons chair.

**WDMD 480 - Web Development Seminar and Workshop.** 4 cr. Apply Web and media development concepts, principles, and practices using formal presentations and group dynamics to develop a Web-based project in a team environment. Also social, legal, and ethical issues related to using the Web. Prereq: 302, 312, CIS 410