GNM 1026-001
Alternative Health Care
Ronald Caplan
MWF 11:20-12:35
Fall 2006

Course Content: This course will examine the two major paradigms in American health care-biomedicine and holism. After a brief review of their historical development, the course will compare and contrast their principal theories and practices. Several practitioners will come to class to discuss and demonstrate alternative healing practices. The course will conclude with a discussion of the future of alternative health care in the United States.

Prerequisite: Open only to freshmen. This is a freshmen seminar.

Attendance: Required.

Class Format: Lecture
GNM 1031-001
Women in Computing
Saralyn Mathis
MWF 12:45-2:00
Fall 2006

Objectives: This course is designed to provide an avenue for first-year students to explore the possibility of a major or minor in computer science and information systems, to gain hands-on experience with some of the tools of Stockton's computing learning environment, to explore computing occupations and the special challenges of women in computing via research and interaction with women currently in the information technology workforce, deletion and to develop learning relationships with class members.

Prerequisites: No computer experience is necessary and is not preferred. This course is NOT appropriate for students in BASK courses.

Attendance: Daily attendance is expected. Attendance for the ENTIRE class period and positive participation can affect your final grade by up to three bonus points.

At least one Zip disk (PC) or a USB Memory Module

Readings: Weekly summaries of readings from the literature.

Laboratory/Field Experience: Weekly sessions.

Papers/Projects: Research paper and presentation and other projects.

Evaluation: Daily assignments, reading summaries, research paper, and oral presentations, Web page project, and other projects.
Objectives: This course is specifically designed for students who would like an intuitive introduction to the world of statistics. The primary purpose of this course is to assist students in developing an understanding of statistical method and inference and its application to a variety of realistic situations. Students who complete the course successfully should be equipped to make informed choices as consumers and citizens and should understand the importance of statistical reasoning in contemporary society.

Course Content:

Prerequisite: High School algebra (1 year)

Attendance: Required.

Class Format:

Laboratory/Field Experience:

Readings:

Paper/Projects:

Evaluation:
Course Objective: This course is being offered as an investigation into mathematical thinking. The subject matter will be placed in the context of the kinds of models that mathematicians use in various disciplines throughout society. Stress will be placed on logical reasoning skills and mathematical modeling of real-life problems. Students will become familiar with ways that technology can be used to solve problems. In several areas, the historical context that surrounded the development of an idea will be included for the student to appreciate, in part, how these ideas evolved. Another goal of the course is that each student acquire skill in assembling numerical data. The student will also be asked to investigate the uses and abuses of statistics in the society at large.

Prerequisites: This course is intended for those students who want to expand their backgrounds in mathematics and want to become better problem solvers. Enrollment is not open to students who have taken BASK 1203, GN_1125, GEN 1135, or any MATH acronym course. Students who have credit for any of these courses will not be given credit for this course. This course is QI quantitative reasoning intensive and W2 writing across the curriculum.

Attendance: Attendance is mandatory

Course Format: This course is taught in the electronic classroom. Microsoft Excel is used for projects and student presentations. The course also makes extensive use of the computer lab.

Readings: The text for the course will be Mathematics in Context by John M. Quinn and Frank A. Cerreto, Stockton College Pomona, NJ. The instructor reserves the right to revise the syllabus, as necessary.

Projects (Preview and End of Semester): You will be working on group projects in this course. In these projects you will be applying principles learned in the course to real world problems. We will be discussing these projects at various times during the semester. Your project will feature at least one real-world application for each unit of the course. In addition, you will form a discussion thread on each of your group projects. There you will set objectives, share timetables, and generally work collaboratively on your projects. Around the middle of the course each group will hand in a preview of their final project. This will be 20% of your final project grade. At the end of the course, your group will turn in your completed project in the form of a written report (80%).

Problem Solving Sessions: These explorations will often be open-ended in nature. Decisions will have to be made concerning how far one should go in a problem and what constitutes a viable answer. Grading will generally be done on the quality of thought demonstrated. There will be several of these during the term. The dates for these are
given in the course calendar. They will generally come at the end of each of the three units of the course. The units are described in the tentative syllabus.

**Grades:** The final grade will be determined in the following manner: 4 tests 25%; Final Group Project 10%; Problem Solving Sessions 15%; Class Participation 15%; Final Exam 35%
GNM 1124-091
Survey of Mathematics
J. Quinn
T 08:30AM-10:20PM
Fall 2006

Objectives:

**Course Content:** This course features mathematical thinking, placed in the context of real world mathematical modeling. The course thoroughly integrates computer technology into the discussion of mathematical ideas. This course is taught in the electronic classroom.

Prerequisite:

Attendance: Required.

Class Format:

Laboratory/Field Experience:

Readings:

Paper/Projects:

Evaluation:
Objectives: This course is intended for students who are interested in learning how to become better problem solvers. Throughout the term, we will examine a series of situations and systems, mostly from the sciences, which allow for the posing of questions. These questions may be vaguely defined at first. After refining the questions, we will generate and testy hypotheses, selecting suitable mathematical models to represent these situations. The ability of these models to accurately represent ‘real-life’ systems will be examined critically. Algebraic concepts and procedures will be introduced as they are needed in developing, selecting and working through these mathematical models.

Prerequisites: C or better in BASK 1203 or GNM 1124, or mastery of high school algebra (1 year). Not open to students with credit for GEN 1135 or any MATH acronym course.

Attendance: Any student with more than 6 absences cannot receive a grade higher than D+.

Class Format: Lecture and group discussions

Laboratory/Field Experience: None

Readings: None

Paper/Projects: During the term, students will complete a total of three Task Sets

Evaluation: Homework, Quizzes, Tests, Task Set, and Final exam
Objectives: (A) To provide students with opportunities to experience the power of algebra first hand; (B) To allow students to develop proficiency with algebra in the context of real world situations, not in isolation; (C) To encourage students to become more active mathematical learners.

Course Content: Students will learn to reason algebraically by doing mathematics, not by studying how mathematics is done. They will study problem situations, develop and refine questions, generate and test hypotheses, select suitable mathematical models, and examine the ability of these models to accurately represent real-life situations.

Prerequisites: Open to all students who have fulfilled their BASK math requirements. Not open to students who are enrolled in or have completed GEN 1135 or any other MATH course.

Attendance: Attendance is critical to success in this course. Accordingly, absences are taken very seriously.

Class Format: Most classes will begin with a problem. Students will be asked to spend a few minutes considering the problem, usually in small groups. They will be required to keep a record of each investigation for reference. Solutions, alternate approaches and problem analysis will be discussed prior to the main topic(s) for the day. Students will be expected to participate in class by sharing ideas, asking questions, and working on problems. Although algebra skills and concepts will be presented and explained in class, most of the material will require work outside of class.

Supplies: Graphing calculators are required. (TI-83 or TI-83 Plus calculators may be rented from the Math Center for about $20)

Laboratory / Field Experience:

Readings: Material concerning the topics to be modeled will come from a variety of books and articles. Copies of relevant material will be provided during the term. The textbook covering algebraic concepts and procedures is Applying Algebraic Thinking To Data: Concepts and Processes for the Intermediate Algebra Student by DeMarois, McGowen, and Whitkanack, Addison Wesley 2001. Also suggested is Graphing Calculator Manual by DeMarois, McGowen, and Whitkanack. Addison Wesley 2001.

Papers / Projects: During the term there will be a total of four task sets. Each will contain several extended “real-life” applications requiring detailed analysis and written
explanation. Consider these as mini-projects requiring the development and application of the mathematics appropriate for each situation.

**Evaluation:** Task Sets 25%, Mid Term Exam 20%, Class Participation 10%, Quizzes 25%, Final Exam 20%
Objectives: This Q1 course is intended for students who are interested in learning how to become better mathematical problem solvers.

Course Content: Throughout the term, we will examine a series of situations and systems, mostly from the sciences, which allow for the posing of questions. These questions may be vaguely defined at first. After refining the questions, we will generate and test hypotheses, selecting suitable mathematical models to represent these situations. The following list describes the general topics to be covered in this course: Mathematical Modeling; Simple Linear Models; Models with Multiple Constraints; Higher Order Models; Other Models. The mathematical content is generally at the level of Intermediate Algebra.

Prerequisites: Open to all students who have fulfilled their BASK math requirements. Not open to students who are enrolled in or have completed GEN 1135 or any other MATH course.

Attendance:

Class Format: Each unit will begin with the presentation of a provocative scenario. Students will be asked to consider this scenario, usually in small groups, working toward problem identification and solution. The use of graphing calculators is thoroughly integrated in the course. A small number of graphing calculators are available for rent to those students who do not already own a graphing calculator.

Supplies: Graphing calculators are required. (TI-83 or TI-83 Plus calculators may be rented from the Math Center for about $20.)

Laboratory/Field Experience:

Readings: Material concerning the topics to be modeled will come from several sources. The textbook for the course is Applying Algebraic Thinking to Data.

Paper/Projects: The course carries a W2 designation; students will write to communicate mathematical ideas. Students will complete a series of four task sets allowing them to be involved in extended writing projects.
This is a Distance Learning course, (W2)

OBJECTIVE: This is a Distance Learning course based on the video series *The Endless Voyage*. The course focuses on the marine environment as a unique feature of Earth and includes 26 half-hour telecourse episodes. It is designed to offer the knowledge, theories and predictions of America's leading oceanographers. The objective of the course is to show students the many elements of the scientific method at work, while studying the ocean. These elements include observations of nature, data analysis, development of theories and models, and their subsequent verification or rejection.

COURSE CONTENT: Some of the topics covered include: ocean history, plate tectonics, islands, currents, waves, tides, marine organisms, light and sound in seawater, and ocean pollution.

PREREQUISITE: Access to email either at home or in Stockton's computer labs.

ATTENDANCE: Mandatory for Orientation and Examinations.

CLASS FORMAT: Distance learning course.


EVALUATION: Written quizzes and examinations, both short answer and essay-type.
OBJECTIVES: To learn various geometric ideas and constructions, and apply them to real-life situations.

COURSE CONTENT: Euclidean plane geometry. Basic properties of triangles and circles. Constructions using straightedge and compass. Geometric constructions using paper folding (origami). Envelopes; generating curves using straight lines. The five Platonic solids; duality. The Euler number for solids and graphs. Symmetry; the four rigid motions. Tilings of the plane (tessellations). Shortest-line problems; geodesics. Billiard problems. Surfaces: the sphere, the torus (donut), the projective plane, and the Klein bottle. Orientable and non-orientable surfaces. Projective geometry; how the eye sees objects; the vanishing point and the vanishing line. The idea of fractal sets and fractal dimension.

PREREQUISITES: A working knowledge of high school algebra (two years) and geometry, or GNM 1125 (Algebraic Problem Solving) with grade C or better.

ATTENDANCE: Mandatory, will be checked each class.

CLASS FORMAT: Interactive classes. Many classes will require hands-on work, with paper, scissors, and glue. We will emphasize independent student work, class participation, and cooperative learning. Students will work in groups starting from the second week of classes. Groups are expected to meet outside class hours at least three times a week to solve assigned problems, do assigned constructions, work on class notes, and do the readings for the next class. Instruction will be based on book readings, handouts, and class notes (which students will take each class).

This section carries a W2 acronym; the course is write-intensive. Each group of students will submit at least one Project per week, carefully written (preferably typeset), with detailed explanations and discussions. Tests answers must be fully justified in writing. This is also a Q1 course.

READINGS: Books and articles on applied geometry.

PAPERS/PROJECTS: Each group will turn in one project per week.

EVALUATION: Projects and three tests. The final test will be cumulative.
GNM 2179  
Scientific Basis of Disease  
Kelly Keenan  
001 TR  12:30PM-02: 20PM  
Fall 2006

OBJECTIVES: To understand the biological and chemical basis of certain human diseases. The diseases discussed include nutritionally based, genetically transmitted, bacterial, and viral diseases as well as cancer and AIDS.

PREREQUISITES: High school biology and chemistry.

ATTENDANCE: Attendance is strongly recommended.

EVALUATION: Based upon examinations and written reports.
OBJECTIVES: The course intends to provide students with a knowledge of, and sensitivity to, current problems threatening wildlife and habitats of the world. Details on natural and man caused extinctions and related topics will be presented.

COURSE CONTENT: This course provides an introduction to the topic of extinct and endangered species with emphasis on man's role in extinction processes. Lectures consider biological mechanisms of extinction and compare cases of natural extinction to those caused by early and modern man. Considerable attention is given to species recently exterminated or currently considered endangered. Some historical developments of man's philosophical attitudes toward animals are also traced.

PREREQUISITES: No background in sciences or other area required; open to all undergraduates.

ATTENDANCE: Required (attendance will be taken at each meeting)

CLASS FORMAT: Lectures, numerous films to provide subject-matter background and case histories, class topic debates, and a term-paper or a short oral presentation to class of an approved topic of his/her choice. There will be considerable emphasis on New Jersey species.

LABORATORY/FIELD EXPERIENCE: No laboratories or field exercises required.

READINGS: The required texts will be assigned later.

PAPERS/PROJECTS: Each student is expected to give a short oral presentation on a topic of his/her choice and relevant to this course at the end of the term, or complete an approved project or term paper.

EVALUATION: Based on performance on: quizzes, major examinations, term paper or class presentation of a selected topics, class discussions, class debates, attendance, and attitude. Tests will be primarily of factual, recall-type, short-answer questions. Values of these are in terms of percent of course grade.

Quizzes 10%
Midterm Exam 20%
Final Exam 20%
Class paper/presentation 20%
Class/participation attitude 10%
Attendance 20%
Objective: To expose students to the modern medical technology including ultrasound, x-ray, CT, lasers, MRI, PET, SPECT, radiation therapy and safety, etc.

Prerequisite: MATH 1000 (high school algebra).

Attendance: Class attendance is mandatory.

Class Format: The class format will include lectures, demonstrations, and problem solving sections. Field trips may be organized when appropriate.


Papers/Project: Outside readings may be assigned when appropriate.

Evaluations: Evaluation will be based on attendance, tests and homework.
Objectives: This hybrid course is an engaging analysis and application of a variety of critical thinking and quantitative skills in which students are expected already to have competence. The course goal is to develop greater understanding of and proficiency with the concepts, methods and models of applied mathematics – using writing as a tool both of learning and assessment. Instruction uses a variety of pedagogies, each chosen so that student practice of quantitative/mathematical reasoning will be better informed citizens and more successful in the inevitable responses they will face in the challenges of the workplace – whether from structural changes in the economy or the rapid infusion of technology that requires acquisition and/or development of new skills.

Course Content: The course content builds on the working knowledge of high school mathematics that is its prerequisite. Students will regularly spend time in and outside of the meeting module “paying attention” to the world beyond the classroom to become more adept at making the connections between the course content and their daily lives in other courses, their family and work lives.

The course presents a variety of mathematical functions (e.g., linear, quadratic, polynomial, exponential) as models of real-world scenarios in personal, family, business and public policy decision making.

Each model is analyzed using the relevant methods (e.g., graphing, algebraic substitutions, matrices, reading a graph or reading a table) with the analysis explained in the student’s own words – using writing both as a tool of learning and assessment.

The models are used as abstractions of varied socio-political economics issues as consumer demand, market supply, public health, population growth/demography, the inflation/unemployment trade-off, crime statistics, government fiscal and monetary policies and market regulations, energy conservation, pharmaceutical development with statistical quality control.

Prerequisites: Students must have satisfactorily completed all the Basic Skills requirements. This is a second level course in both the Writing Across the Curriculum and the Quantitative Reasoning across the Disciplines Curriculum. The course is a Hybrid course; each student must have an active loki account and have access to a computer during the course meeting modules for the scheduled interactive session on WebCt.

GNM 1005 is also a Q1 course in the QUAD Program. As explained in the Stockton Bulletin.
This designation indicates the role and function of quantitative reasoning in the course, not the degree of difficulty. Q-designed courses appear throughout the curriculum, in program and in general studies.

Q1 and Q2 courses emphasize mathematical problem solving with special attention given to the development of problem solving approaches. In addition, these courses stress the importance of the communication of mathematical ideas in both written and oral forms.

In a Q1 course, mathematical thinking is the primary focus of study. Q1 courses emphasize the mathematical structures underlying various phenomena. Although focused on mathematical reasoning. Q1 courses provide ample opportunities for investigating diverse applications of the concepts discussed. These courses draw rich connections among different areas of mathematics.

In a Q1 course, the majority class time is spent on mathematical concepts and procedures. Students work on mathematics during virtually every class session. The quality of their mathematical work is the major criterion for evaluating the student performance in the course. (The quality of the work is determined by clear presentation/explanation of process and explanation/interpretation of the results of the model.)

**Attendance:** Required. Active engagement during the course meeting module is an integral part of course evaluation. An in-class “start up” assignment will be used for attendance. Late arrivals will earn no credit for this work but can obtain feedback by submitting the assignment on line before the start of the next class.

**Class Format:** The course is a seminar with a blend of lecture/discussion, in-class problem-solving and work on group projects; review of out-of-class problem solving and computer application; in-class writing and review of out-of-class writing assignments (with written explanations required to accompany the more "quantitative" assignments). The intention here is specifically to persuade students of the equal importance of "quantitative" and "verbal" skills for their overall mathematical, statistical and computer literacy and related success as productive workers and effective citizens. Attendance at the scheduled interactive classes on WebCt is also required.

**Laboratory Experience:** Students are responsible for checking the postings on the WebCt created for the course. A Loki account number (available from the Computer Center) is required to access the web caucus. Students are also required to communicate with the instructor via e-mail and make at least 2 postings per week on WebCt. Students will use the mathematical and statistical applications on the Stockton network. (No specific course experience is required/expected.)


**Paper/Projects:**
1. Group Project from an Extended Application found in each chapter
2. Problem Solving requiring software and/or a calculation
3. Independently prepared Problems of the Week

The deadlines and requirements for each of these will be provided with each assignment.

**Evaluation:**

1. Class Participation: (10 percent) This includes attendance, active and positive engagement, WebCt, in-class assignments, holistically evaluated assignments, seeking needed help outside of class.

2. Formal Problem Solving/Scenario Analysis: (30 percent) These will include problems of the week, chapter assignments, extended applications and a group project from chapter 6.

3. Examinations: (30 percent) There will be 3 cumulative and equally weighted exams. The scheduled dates will be provided on the first day of class.

4. Model Assignment (20 percent) Each student will engage in an extended process of analysis, and evaluation of a model with which s/he already has a basic understanding. The choice of the model is made with the consultation and approval of the instructor.

Portfolio: (10 percent) Detailed written instructions will be available at the course WebCt for those absent on the day these are distributed to the class.
GNM 2225-001
General Astronomy
Staff
MW 06:00PM – 07:50PM; MW 08:00PM – 09:50PM
Fall 2006

OBJECTIVES: A scientific survey of our current knowledge about the universe for students with a knowledge of high school algebra and geometry. The emphasis is on our current understanding of the solar system, stars, galaxies and other cosmic phenomenon. Observation sessions will be held each clear night after class at the Stockton Observatory. Naked eye viewing will help student become familiar with the night sky. Viewing will also be done using the 5” and 16” telescope, both directly and using the CCD camera. Each student is expected to attend a minimum of 6 observing sessions. Computer activities will complement these sessions.

PREREQUISITES: High school algebra

ATTENDANCE: Required

CLASS FORMAT: Lecture

LABORATORY/OBSERVATIONS: Observing sessions at the Stockton College Observatory

TEXTBOOKS: Astronomy: Journey to the Cosmic Frontier, Third Edition, by John D

PROJECTS/PAPERS: Computer based projects.

EVALUATION: Midterm 30%, Final 30% and Observatory/ computer base projects 40%.
OBJECTIVE: Over the last ten years our knowledge of the solar system has grown tenfold thanks to new observations from the ground and space observatories. The sun is much more interesting and variable than we previously thought. On Mars, two landers are currently looking for water. All these new and amazing observations are discussed within the framework of our current understanding.

Observation sessions will be held each clear night after class at the Stockton Observatory. Naked eye viewing will help students become familiar with the night sky.

PREREQUISITES: High school algebra and geometry.

ATTENDANCE: Required. Each student is expected to attend a minimum of 6 observing sessions. Computer activities will complement these sessions.

CLASS FORMAT: Lecture

LABORATORY/OBSERVATIONS: Observing sessions at the Stockton College Observatory.


PROJECTS/PAPERS: Computer based projects. Extra credit for research and work at the Observatory.

EVALUATION: Four Exams and a Final.
OBJECTIVES: Compilation, design, and evaluation of maps, includes cartometric procedures, symbolization, color use guidelines, map typography, photographic manipulations, and interactivity, and geographic visualization techniques. Hard copy and internet-based outputs. Lecture and laboratory.

COURSE CONTENT: This course is designed as an introduction to modern cartographic theory and conventions, but also provides significant introductory hands-on experience in map design using computer software. The course is divided into lecture and lab. Each topic covered in the course is divided into a lecture and laboratory section. Students are presented with fundamental design theories and principles associated with particular types of maps or related graphic materials in lectures, then challenged to implement these principles in self guided hands-on exercises using modern cartographic software. The course is intended to cover the basic principles of cartography as well as modern techniques which have influenced map design, presentation, and interpretation processes. Students will develop a series of hard copy maps, charts, and graphics as well as design materials for presentation through digital mediums.

PREREQUISITES: A basic working knowledge of personal computers.

Selected Lecture Topics:
A Brief History of Cartography
Cartographic Design Fundamentals
Map Symbology
Geographic Information Systems
Map Projections, Coordinate Systems, and Scale
Thematic Map Types
Mapping Three Dimensional Data
Global Positioning Systems
Interactive Cartography
Satellite Imagery and Aerial Photography
Geographic Visualization
GNM 2256-001
Visualizing Quantitative Information
Bob Olsen
MW 03:35PM-05:25PM
FALL 2006

OBJECTIVES: Our goal is to answer the question “What makes a visual display of quantitative information (data) effective?” In reaching an answer, central considerations will be ways in which multidimensional data is and can be displayed.

COURSE CONTENT: We will identify characteristics of effective visual presentations of quantitative information through close examination of published graphic images and by creating and revising original graphic images using data from a variety of sources. Our critiques will be guided largely by ideas drawn from the work of William S. Cleveland and Edward R. Tufte.

PREREQUISITES: High school algebra (two years) and geometry

ATTENDANCE: Working in groups during class is an essential aspect of the course.

CLASS FORMAT: Lecture, discussion, workshop discussion, regular use of visualization software

READINGS: William S. Cleveland, *The Elements of Graphing Data*, Hobart Press (Summit, NJ), 199

PAPERS/PROJECTS: Short opinion papers critiquing published graphic images, original graphic images developed from published data.

EVALUATION: Based on several short projects illustrating specific topics and assigned during the first half of the semester, a large project using data chosen by each group, and participation.
GNM 2261
Introduction to Environmental Pollution
Tait Chirenje
091 W 06:00PM-07:50PM
092 W 3:35PM-5:25PM
Fall 2006
This is a Distance Learning Course

OBJECTIVES: and brief description of class: The main objective of this class is to introduce students to the most common forms of environmental pollution, their sources, persistence in the environment, pollution prevention, and regulation and clean-up of contaminated soils, air and water systems. Case studies will be used to demonstrate how different communities have dealt with specific kinds of pollution.

COURSE CONTENT: The main topics covered in this class include, basic toxicology, risk, air pollution and regulation, water pollution and regulation and hazardous waste production and disposal. We will also look at the social aspects involved in pollution.

CLASS FORMAT: Lecture with considerable in-class and online (weekly) discussion on WebCT.
We will have a few guest speakers and possibly a field trip.

ATTENDANCE: Strongly encouraged.

EVALUATION: Grades will be based on assignments, class quizzes, the mid-term exam and a final exam. % of total grade: Mid-term exam 20, Final exam 30, Quizzes 30, Case study report 10, and Assignments 20, Total: 100

PAPERS AND PROJECTS: Students will be required to write a term paper outlining a case study dealing with pollution of a medium of their choice and how local and federal laws were used in effecting remediation.

Field trips and guest speakers: We will have a few guest speakers both from Stockton and outside to discuss real-world problems and solutions to common environmental problems.

Text: Other: Our global environment. A health perspective 6th ed. By Anne Nadakavulcaien. Waveland Press luc. Course materials will be provided on WebCT. Students are strongly encouraged to access WebCT before every class to download notes and readings. The calendar in WebCT is also used to communicate topics to be covered in class.
OBJECTIVES: The proposed course is intended to provide a general introduction to environmental health and science with a particular emphasis on the interaction of man and his environment. The proposed course will focus on providing a general overview and understanding of functional and conceptual principles for analysis of environmental concerns and solutions including, among others: Discover/Research Air Resource Management
OBJECTIVE: To learn about the history and the role of cryptography in the world and also to the mathematics behind encoding and decoding messages

COURSE CONTENT: Historical ciphers such as shift ciphers, the cipher of Mary Queen of Scotts, the Vigenere cipher, the Enigma machine, also modular arithmetic, including linear congruences, greatest common divisors, different number bases, modular inverses, applications of modular arithmetic to cryptography, also public key cryptography, and additional topics as time allows.

PREREQUISITES: MATH 1100, GEN 1135 or equivalent

ATTENDANCE: Mandatory

CLASS FORMAT: Discussion, lectures, and hands-on work.

READING: The Code Book by Simon Singh; A Short Course in Cryptography by Frank Beatrous

EVALUATION: Class participation, homework, and exams.
OBJECTIVES: The main objective of this course is to introduce Automotive Technology to students with no prior technical knowledge and make them well-informed drivers. The course explains how the different systems in a typical automobile work. It introduces the scientific concepts utilized in engine operation and power transmission. It discusses car pollution and emission control. It provides a valuable knowledge about car structures, crash worthiness and safety. It also discusses the future alternatives for today’s polluting automobiles.

COURSE CONTENT: -Automobile Engines, Energy Transmission, Electronics, Car Structure and Safety, Pollution and Emission Control, Electric and Solar Cars

CLASS FORMAT: Lectures.

READINGS: Some books will be available “on reserve” in the library.

PAPERS/PROJECT: A paper and a presentation.

EVALUATION: Homework 20%, Exams 60%, Paper 10%, presentation 10%.
GNM 2471-001
Biology of Marine Mammals
Carol Slocum
TR 02:30PM - 04:20PM
Fall 2006

OBJECTIVES: 1. Explain the methods of science to approach this field.
2. Introduce the student to the variety of marine mammals.
3. Present the evolutionary history of marine mammals and the taxonomic groups
   (include whales, dolphins, seals, porpoises, sirenians, walruses and polar bears).
4. Survey the adaptations required for land-evolved mammals to live in the sea.
5. Explore the myths and truths of communication and intelligence in marine mammals.
6. Understand the history of whaling, the problems involved in hunting whales, and the
   current status of the world population of marine mammals.

COURSE CONTENT: 1. Evolution of marine mammals.
2. Classification of marine mammals (taxonomy to order, class, family).
3. The unique design constraints of land animals which have returned to the sea.
4. Biological functions, such as feeding, breathing, swimming and diving.
5. Communication and intelligence in marine mammals.
6. Current population biology and whether extinctions are near.

ATTENDANCE: Attendance is mandatory.

CLASS FORMAT: Lectures will provide the basic material. Films and slides will
supplement lectures and readings.

READINGS: Whales and Dolphins (Carwardine et al)Wings in the Sea (Winn and Winn)
A Natural History of Marine Mammals by SchefferThe Sierra Club Guide to
Whales and Dolphins; The Sierra Club Guide to Seals and Sirenians.

EVALUATION: Grades will be based on three tests, and classroom participation.
OBJECTIVE: To explore and understand the basic principles of chemistry; to become an informed citizen to make rational choices about complex technical issues which will have an increasing impact on our daily lives and standard of living.

DESCRIPTION: The course will examine how chemistry can be used to understand and explore everyday experiences and societal concerns. Chemical principles and the methods of science will be taught using examples from the text, newspapers, and journal articles. By applying the basic principles introduced, students will be able to relate them logically to their observations and their readings. This is a hybrid course with a telecourse component based on the World of Chemistry video series and an online component that makes use of WebCT. Assignments and tests will be posted and received on WebCT. The telecourse package includes a textbook and 26 half-hour programs. The course content is not limited to the topics covered in the videotapes. The textbook covers course content topics which are not dealt with in the video programs.


ATTENDANCE: This is a Distance Learning course and does not require weekly class meetings. However, a few class meetings have been scheduled. Some of these meetings will include periods for examinations. The class meetings will be used to discuss course content, problems and concerns. Meetings: September 9, October 14, November 18, and December 2 (2:10PM-3:25PM)

EVALUATION: Quizzes 20% and Four examinations 80%.
GNM 3105-001  
Psychopharmacology,  
Steve Fischer  
MW 6:00-7:50  
Fall 2006

Objectives:

1. Students will understand the physiological basis of kidney, central nervous system and neuronal function.
2. Students will understand the fundamental concepts of pharmacodynamics and pharmacokinetics.
3. Students will learn the 12 major categories of psychoactive drugs.
4. Students will learn the pharmacodynamics and pharmacokinetics associated with each class of psychoactive drug.
5. Students will understand the effects of drugs on the body, behavior, developing fetus, etc.
6. Students will look at the historical and financial aspects of drug use.
7. Students will be able to make more rational decisions concerning the advantages and disadvantages of drug usage.

Course Content: We will explore, through lecture, guest speaker, class discussion and student presentation, the nature, action and use of psychoactive drugs.

Prerequisites: Must be Junior or Senior. Not open to students who have taken GIS 3105.

Attendance: Required.

Class Format: Lectures, presentations, discussions, audio-visuals.


Evaluation: Based on: Attendance, Exams, Class Participation.