Syllabus

1. **Course number and name**
   03 112 - Values and Loyalties of Profession
2. **Credits and contact hours**
   3 Credit and 3 Contact Hours per Week (Lecture: 3 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Ahmad Jafar Al-Kandari
4. **Textbook, title, author, and year**
   - **Textbook:** "Work Values and Loyalty," approved by the Academic Affairs Committee, authored by a group of faculty members, printed in 2006 by Ibn Kathir Library - Kuwait.
   - **Other supplemental materials**: Selected scientific journals and online resources related to economic sociology and labor market studies.
5. **Specific course information**
   a) Brief description of the content of the course (catalog description): The course delves into the theoretical and practical aspects of work values and loyalty, examining their impact on personal achievement, the labor market, and societal progress.
   b) Prerequisites or co-requisites: None.
   c) Required, Elective, or Selected Elective: General compulsory course.
6. **Specific goals for the course**
   - **Specific outcomes of instruction**: Students will be able to critically analyze the role of work values and loyalty in the context of the national economy and societal development.
7. **Brief list of topics to be covered:**
   - Theoretical Foundations of Work Values and Loyalty
   - The Role of Work in National Economy and Citizenship
   - Rights and Duties in the Workplace
   - Labor Market Dynamics and Professional Relationships
   - Sociological Theories and Economic Sociology
   - Research Methods in Social Studies
   - Case Studies on Work Values and National Loyalty
   - Comparative Analysis of Global Labor Market

1. **Course Number and Name:**
   01 101 - Islamic Education
2. **Credits and Contact Hours:**
   3 credits and 3 contact hours per week
3. **Instructor's or Course Coordinator's Name:**
   This course is given by another college within PAAET thus Instructor's name differs from one course to another.
4. **Textbook, Title, Author, and Year:**
   "Studies in Islamic Culture," by Mohammed Abdul Salam Mohammed and others.
5. **Specific Course Information:**
   a) **Brief Description:** This course deals with the definition of Islamic culture, its components, sources, and comparisons with other cultures. It covers the significance of Islamic culture in religion, ethics, language, and history. Additionally, it addresses the challenges faced by Islamic culture in the face of other cultures and includes topics on contemporary Islamic thought, the system of governance in Islam, the Islamic economic system, and the role of media in shaping public opinion about Islam and Islamic societies.
   b) **Prerequisites or Co-requisites:** None
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific Goals for the Course:**
   a) **Specific Outcomes of Instruction:**
   - Students will understand the components and characteristics of Islamic culture.
   - Students will recognize the importance of Islamic culture in the formation of a Muslim and the construction of Islamic society.
   - Students will appreciate the role of Islamic culture in addressing intellectual invasion and ideological conflicts.
   - Students will explain contemporary Islamic thought and its approach to current issues.
   - Students will analyze the system of governance in Islam and its characteristics.
   - Students will understand the Islamic economic system and its principles.
   - Students will discuss the influence of media in shaping public opinion about Islam and Islamic societies.
   - Students will promote the values of tolerance, cooperation, and coexistence in Islamic culture.
   - Students will study the ethics of work and production in Islamic culture.

   b) **Student Outcomes Addressed:**
      - Broaden knowledge of Islamic culture and practices.
      - Develop critical thinking skills in analyzing contemporary Islamic issues.
      - Enhance understanding of the Islamic economic system and governance.
7. **Brief List of Topics to Be Covered:**
   - Definition and components of Islamic culture
   - Comparison with other cultures
   - Significance of Islamic culture in religion, ethics, language, and history
   - Contemporary Islamic thought
   - System of governance in Islam
   - Islamic economic system
   - Role of media in shaping public opinion

- Ethics of work and production in Islam
- Values of tolerance, cooperation, and coexistence

1. **Course number and name**
   24 107 - Introduction to Computers
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lecutres: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Nada Qassem
4. **Text book, title, author, and year**
   - New Perspectives on Computer Concepts, Tenth Edition, Parsons/Oja, Course Technology, 2007, ISBN13 978-1-4239-0610-0.
   - R.G. Dromey, How to Solve it by Computer.
5. **Specific course information**
   a) **Brief Description:** This course is designed to provide students with an overall knowledge of computer systems. Students will be introduced to computers and digital basics, followed by computer hardware, software, operating systems, and file management. This course teaches the concepts of problem-solving techniques to develop skills in solving computational problems; specifically, analyzing the problem and developing an algorithm. Additionally, the course provides students with basics of emails.
   b) **Prerequisites:** No prerequisites
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   - Classify computers and differentiate between the computer's types.
   - Describe the major components of computer systems.
   - Define the digital representation of data.
   - Introduce problem-solving techniques in computer science.
   - Differentiate between system software and applications software.
   - Use operating system and file manager.
   - Create files using office suite.
   - Apply standard problem-solving heuristics to aid in problem solving related to computer science.
7. **Brief list of topics to be covered**
   - Classify computer by types.
   - Describe the major components of computer systems.
   - Differentiate between System software and applications software.
   - Define the digital representation of data.
   - Demonstrate problem-solving skills.
   - Practice files management.
   - Use office suite.
   - Administer an email account.

1. **Course number and name**
   32 4101 - Principle of Economics
2. **Credits and contact hours**
   3 Credits and 3 Contact Hours per week
3. **Instructor's or course coordinator's name**
   Economics Department Instructors
4. **Text book, title, author, and year**
   Principles of Economics Analysis by H. Al-Omar, A. Al-Azami, and A. Al-Mumen, First Edition, Al-Falah Distribution Co.
5. **Specific course information**
   a) **Brief Description:** A principle of economics is an introductory course in economic theory. It introduces undergraduate students to the fundamental concepts of economic analysis, including the study of the economic behavior of individual economic decision-making units such as consumers and producers. Topics include money and banking, GDP, aggregate consumption, saving, and investment.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   a) **Specific outcomes of instruction:**
   - Define economics, economic problems, economic systems, opportunity cost, and production possibilities frontier.
   - Explain the concept of demand and supply, demand curves, and factors affecting demand and supply.
   - Measure elasticity of both demand and supply and understand price elasticity of demand and total revenue.
   - Determine the concept and measures of utility, the law of diminishing marginal utility, and utility maximization.
   - Measure costs of production in the short and long run and economies of scale.
   - Explain perfect competition, monopolistic markets, and profit maximization under these two markets.
   - Explain monopolistic competition market and profit maximization under monopolistic competition market.

   b) **Student outcomes addressed by the course:**
   - Understanding of fundamental economic principles and concepts.
   - Ability to analyze and interpret economic data.
   - Knowledge of market structures and their impact on economic outcomes.
   - Comprehension of national and international economic policies and their implications.
7. **Brief list of topics to be covered.**
   - Economics and the economic problem
   - Market balance
   - Elasticity
   - Project theory
   - Project balance
   - The economic activity content.
   - Money and banking
   - International economic

1. **Course number and name**
   34 6111 - Math for Health Sciences
2. **Credits and contact hours**
   2 Credits and 3 Contact Hours (Lecture: 1 hr and Lab 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Amani AlShatti
4. **Text book, title, author, and year**
   - E.Swokowski & J.Cole. *Algebra and Trigonometry with Analytic Geometry*. Edition: 10th. Publisher: Brooks Cole. Year: 2001. ISBN: 053477599. Pages: 960. Required
   - Hirsh & Goodman. *Precalculus, Understanding Functions, A Graphical Approach*. Publisher: Brooks/Cole. Year: 2000. Not Required.
5. **Specific course information**
   a) **Brief Description:** The course is designed to introduce basic analytic and geometric properties of the algebraic functions with a heavy emphasis on trigonometry. Topics included are algebraic and trigonometric techniques, coordinate geometry, functions and relations and their graphic representation, and common logarithms.
   b) **Prerequisites:** No Prerequisites
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   - Develop an understanding of circular functions and analytical trigonometry as a foundation for calculus.
   - Show ability to graph trigonometric functions and their inverse functions.
   - Discuss the domain, range, and properties of trigonometric functions.
   - Demonstrate understanding of plain from the standpoint of rectangular and polar coordinates, vectors, and complex numbers.
   - Apply trigonometric principles to solve problems using triangles.
   - Apply elimination and substitution operations to solve simple linear systems of equations.
   - Identify and graph a logarithmic function.
   - Manipulate polynomials.
7. **Brief list of topics to be covered**
   - Perform the four basic operations with integers.
   - Perform the four basic operations with rational numbers.
   - Use a scientific calculator to perform mathematical calculations.
   - Solve applications involving real numbers.
   - Algebraic concepts (integers, equations, factoring, graphing, formula rearrangement, and systems of equations).
   - Perform computations using appropriate methods.

1. **Course number and name**
   27 127 – Biostatistics I
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lecture: 2 hr and Lab 2 hrs)
3. **Instructor's or course coordinator's name**
4. **Text book, title, author, and year**
   - **Textbook:**
     - **"Fundamentals of Statistics"** by Dr. Mohamed Al-Saleh, Dr. Rashid Izhbiya, Ms. Suhaila Al-Farhoud, and Ms. Wafa Al-Kharif – 2011
   - **Supplementary Material:**
     - Prof. Dr. Ahmed Mostafa Al-Ashqar – "Introduction to Statistics: Concepts and Methods" – Dar Al-Nashr wa Al-Tawzi', Amman, Jordan – 2010
     - Dr. Hassan Yassin Taamah and Iman Hussein Hanoush – "Fundamentals of Applied Statistics" – Dar Safaa Publishing and Distribution, Amman, Jordan – 2009
     - Dr. Dalal Al-Qadhi, Dr. Suhaila Abdullah, and Dr. Mahmoud Al-Bayati – "Statistics for Administrators and Economists" – Dar and Library Al-Hamid, Amman, Jordan – 2003
     - Saleh Rashid Batarsa – "Statistics and Probabilities" – Dar Al-Nashr wa Al-Tawzi', Amman, Jordan – 2009
5. **Specific course information**
   a) **Brief Description:** The course covers how to collect and display data using frequency tables and graphical representations. It also applies statistical methods to calculate measures of central tendency and dispersion. The course includes determining the relationship between two variables through linear correlation studies, deriving the mathematical formula for prediction using simple linear regression, and establishing the general trend line equation for time series and its applications to various phenomena. Additionally, it explains basic concepts in probability and how to calculate them, along with some discrete and continuous probability distributions for a single random variable.
   b) **Prerequisites:** 24 107 Introduction to Computers
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   - Understand basic concepts and terminology in statistics.
   - Learn how to collect data necessary for studying a particular phenomenon.
   - Master the statistical tabulation in frequency tables.
   - Develop the ability to graphically display data.
   - Derive some quantitative measures of the phenomenon under study.
   - Find and interpret the relationship between two variables.
   - Formulate the relationship between two variables as a first-degree mathematical equation.
   - Analyze the general linear trend of time series and use it for future prediction of the phenomenon under study.
   - Understand the basics of probability and its applications.
   - Calculate probabilities for random variables in some discrete probability distributions.
   - Find the expectation of discrete random variables.

- Calculate probabilities for random variables in some continuous probability distributions.
- Find the expectation of continuous random variables.
- Use Microsoft Excel for statistical processing of the above topics and its applications in business.

7. Brief list of topics to be covered

- Basic concepts and terminology in statistics.
- Statistical tabulation in frequency tables.
- Graphical and geometrical display.
- Quantitative description of statistical data.
- Probability.
- Discrete probability distributions.
- Continuous probability distributions.

1. **Course number and name**

27 217 – Biostatistics II

2. **Credits and contact hours**

3 Credits and 4 Contact Hours (Lecture: 2 hr and Lab 2 hrs)

3. **Instructor's or course coordinator's name**
4. **Text book, title, author, and year**
   - **Material:**
     - Dr. Anis Ismail Kango, Dr. Abdulhamid Abdullah Al-Zaid, Dr. Abdulrahman Suleiman Al-Ruziza – "Principles of Inferential Statistics" – King Saud University, Riyadh, Saudi Arabia, 2005
     - Hassan Mohamed Hassan – "Principles of Social Statistics" – Dar Al-Maarifa Al-Jamiya, 2000
     - Hassan Mohamed Hussein – "Methods of Statistics and Applications" – Dar Al-Maarifa Al-Jamiya, 1992
     - Dr. Hussein Yassin Taamah, Iman Hussein Hanoush – "Inferential Statistics" – Dar Safaa Publishing and Distribution, Amman, Jordan, 2012
     - Mohamed Bahgat Kashk – "Principles of Social Statistics" – Dar Al-Maarifa Al-Jamiya, 1996
     - Dr. Mahdi Mohamed Al-Qassas – "Principles of Statistics and Social Measurement" – Dar Al-Kutub, Cairo, Egypt, 2007
5. **Specific course information**
   a) **Brief Description:** This course introduces the fundamental principles of inferential statistics, covering topics such as the normal distribution, chi-square distribution, and t-distribution, including their tables and relationships. The course also discusses sample distributions derived from a normal population (distribution of sample mean, distribution of the difference between two sample means, sample variance distribution, and the ratio of two sample variances). It includes the central limit theorem, the law of large numbers, hypothesis tests about means, differences between proportions, variance tests in one-way and two-way designs, and Scheffe, Duncan, and Newman-Keuls tests for comparing means. The course focuses on applying statistical tests and interpreting their results, utilizing statistical tables, Microsoft Excel, and statistical software for data analysis.

   b) **Prerequisites:** 27 127 Biostatistics I

   c) **Required, Elective, or Selected Elective:** Supportive compulsory course.
6. **Specific goals for the course**
   - Understand the concept and importance of inferential statistics.
   - Grasp the theoretical background of probability distributions.
   - Comprehend the difference between sample statistics and population parameters.
   - Learn the fundamental principles of estimating population parameters.
   - Recognize the types of statistical hypotheses, how to formulate and distinguish them.
   - Understand significance levels, their use, and how to avoid related errors.
   - Select appropriate statistical tests to validate hypotheses.
   - Interpret the results of statistical tests.
   - Differentiate between various tests and their appropriate applications.

- Understand statistical analysis using Microsoft Excel for applying the above topics in various fields.

7. **Brief list of topics to be covered**
    - Basic properties of a probability distribution.
    - Random samples.
    - Small sample distributions.
    - Basic principles of estimation.
    - Interval estimation.
    - Statistical principles of hypothesis testing.
    - Hypothesis tests based on the normal distribution.
    - Hypothesis tests based on the t-distribution.
    - Hypothesis tests based on the chi-square distribution.
    - Hypothesis tests based on the F distribution.

1. **Course number and name**
   30 099 – English Language (Remedial)
2. **Credits and contact hours**
   0 Credit Hours and Contact Hours 5 (Lecture 5 hrs per week)
3. **Instructor's or course coordinator's name**
   Course Developing Team:
   Dr. Sulaiman Al-Rabah
   Dr. Shu Hua Wu
   Dr. Elham Mohammed
   Alyaa Al-Mutawa
   Shahad Al-Fadhel
   Fajer Abbas
4. **Text book, title, author, and year**
   - Textbook: New Interactions – Reading and Writing (Level 1)**,** Pamela Hartmann & James Mentel, 2020, McGraw Hill.
   - Supplemental Materials: Connect – Digital Learning Platform
5. **Specific course information**
   a) **Brief Description:** This academic English course is designed to revise existing knowledge and skills and prepare students for subsequent academic and ESP courses. It is a remedial 5-hour non-credit course for students who do not pass the English Placement Test (EPT). The course aims to equip students with relevant communicative skills and real-world strategies crucial for academic success in a fast-paced global world.
   b) **Prerequisites:** N/A
   c) **Required, Elective, or Selected Elective:** Required for all newly admitted students who do not pass the English Placement Test (EPT).
6. **Specific goals for the course**
   a) **Specific outcomes of instruction:**
      - Develop and integrate the use of language skills (reading, writing, listening, and speaking) for communication purposes.
      - Enable students to communicate effectively and appropriately in everyday life situations.
      - Improve students' academic performance in other courses where the medium of instruction is English.
      - Build a set of academic skills in the English language to assist students in pursuing undergraduate academic courses in English.
      - Prepare students for career and professional life where English is a second or foreign language.
      - Prepare students to be confident and competent in both written and spoken communication.

   b) **Student outcomes addressed by the course:**
      - Effective communication in real-life situations.
      - Use of English for study purposes.
      - Development of academic skills for future educational and career purposes.

- Integration of the four language skills.
- Interest in foreign language learning.

7. Brief list of topics to be covered

- Reading texts and comprehension strategies
- Text organization and vocabulary-building
- Writing a variety of texts
- Basic language conventions
- Critical thinking activities
- Use of digital technology for communication
- Teamwork and collaboration skills

1. **Course number and name**
   33 0104 - English Language
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours: 4 (Lecture: 2hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Course Developing Team:
   Dr. Sulaiman Al-Rabah
   Dr. Shu Hua Wu
   Dr. Elham Mohammad
   Alyaa Al-Mutawa
   Shahad Al-Fadhel
   Fajer Abbas
4. **Text book, title, author, and year**
   - **Textbook:** New Interactions 2 (Level 2): Reading & Writing, Elaine Kim & Pamela Hartmann, 2020, McGraw Hill
   - **Supplemental Materials**:
     - Online resources – assessment tools for teachers.
     - New Interactions 2 (Level 2): Listening & Speaking (Supplementary optional)
5. **Specific course information**
   a) **Brief Description:** This course aims to build on existing knowledge of vocabulary and grammar and to expand students' oral/aural skills in English. It focuses on general academic English skills organized around everyday topics. Students will develop their reading, writing, listening, and speaking skills focusing on academic English. This course is offered at all five colleges of the Public Authority of Applied Education & Training.
   b) **Prerequisites:** 30 099 English Language (Remedial)
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   - Reading and writing skills
   - Listening and speaking skills
   - Academic English skills
   - Use of digital technology for language learning
   - Critical thinking and teamwork
   - Effective communication in academic and professional contexts
7. **Brief list of topics to be covered**
   - Vocabulary and grammar development
   - Reading and writing skills
   - Listening and speaking skills
   - Academic English skills
   - Use of digital technology for language learning
   - Critical thinking and teamwork
   - Effective communication in academic and professional contexts

1. **Course number and name**
   30 117 – English Language (English Composition and Technical Writing)

2. **Credits and contact hours**

   3 Credits and 4 Contact Hours (Lecture: 2hrs and Lab: 2 hrs)

3. **Instructor's or course coordinator's name**

   Course Developing Team:

   Sherifa Carlo

   Maryam Albahbahani

4. **Text book, title, author, and year**
   - Textbooks: Reading and Vocabulary Development (3) - Cause and Effect (4th Edition), Patricia Ackert and Linda Lee, Thompson ELT
   - Supplemental Materials: Online materials
5. **Specific course information**
   a) **Brief Description:** This is an English as a Second Language (L2) technical and scientific applied reading course. It is designed to help students build confidence in reading independently in English, increase their reading speed, and expand their vocabulary. The course provides systematic and structured reading practices to improve reading ability and understanding of scientific materials through comprehension and text evaluation. It emphasizes scientific and technical reading comprehension and writing as a natural succession to reading comprehension in science and technology.
   b) **Prerequisites:** 30 104 English Language
   c) **Co-requisites:** 30 099 English Language Remedial
   d) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   - Specific outcomes of instruction:
   - Comprehend technical and scientific texts.
   - Apply comprehension skills in oral presentations.
   - Understand and use scientific and technical vocabulary.
   - Incorporate logical and critical reasoning in reading.
   - Recognize grammatical rules and components of paragraphs.
   - Student outcomes addressed by the course:
   - Ability to comprehend information from scientific or technical sources.
   - Decipher meaning in various scientific and technical genres.
   - Understand logical and critical reasoning.
   - Recognize logical, cohesive, grammatically correct text.
7. **Brief list of topics to be covered**
   - Comprehension of technical and scientific texts
   - Oral presentation skills for scientific and technical content
   - Scientific and technical vocabulary development
   - Logical and critical reasoning in reading
   - Grammatical rules and paragraph structure
   - Reading skills strategies and practices
   - Critical analysis and effective communication skills

1. **Course number and name.**

30 217 – English Language (Advanced Reading)

2. **Credits and contact hours**

Credits 2 and 2 Contact Hours (Lecture: 2 hrs)

3. **Instructor's or course coordinator's name**

Course Developing Team:

Sherifa Carlo

Maryam Albahbahani

Shahad Alfadhel

4. **Textbook, title, author, and year**

- **Textbooks:** Pamphlet designed by English Unit Instructors
- **Supplemental Materials:**
  - Online resources
  - Online materials

5. **Specific course information**

a) **Brief Description:** This is an English as a Second Language (L2) technical and scientific writing course. It is designed for Environmental Science majors, emphasizing the basics of scientific and technical writing including prewriting, writing, and revision. The course focuses on developing clear, organized writing skills and critical thinking. Students will learn to read, analyze, and write in a variety of expository forms, emphasizing scientific and technical writing, logical thinking, and comprehension of technology and science-based materials.

b) **Prerequisites:** 30 117 English Language (English Composition and Technical Writing)

c) **Co-requisites:** 30 104 English Language and 30 099 English Language (Remedial)

d) **Required, Elective, or Selected Elective:** General compulsory course.

6. **Specific goals for the course**

a) **Specific outcomes of instruction:**
   - Develop clear, organized writing skills and critical thinking.
   - Read, analyze, and write in various scientific expository forms.
   - Emphasize accepted standards and techniques of scientific and technical writing.
   - Write coherent, unified text, develop thesis statements, and use effective vocabulary, conventional sentence structure, and standard English grammar.
   - Understand the parameters of scientific notation and plagiarism.

b) **Student outcomes addressed by the course:**
   - Utilization of brainstorming techniques.
   - Production of topic statements.
   - Creation of logical, cohesive, grammatically correct paragraphs.
   - Writing in various scientific and technical genres.
   - Accumulation of research and report components into a research paper.

7. **Brief list of topics to be covered**
   - Brainstorming techniques for writing.
   - Producing topic statements.
   - Writing logical, cohesive, grammatically correct paragraphs.
   - Writing in various scientific and technical genres.
   - Research and report writing.

1. **Course number and name**
   44 105 - General Geology
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lecutre: 2hrs and Lab: 2hrs)
3. **Instructor's or course coordinator's name**
   Dr. Nabeel AlKhulaifi
4. **Text book, title, author, and year**
   - E.A. Keller. *Environmental Geology*. Edition: 8th. Publisher: Prentice Hall. Year: 1992. Required
5. **Specific course information**
   a) **Brief Description:** This course intended to provide a background of concepts and processes that allow us to make meaningful assessments of problems related to human interactions with nature in terms of natural disasters and natural resources management, environmental ethics, and human population growth consequences.
   b) **Prerequisites:** 46113 General Physics
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   - Develop an understanding of the basic philosophy and fundamental principles of the earth as a closed system.
   - Develop an environmental awareness.
   - Demonstrate understanding of the fundamental environmental concepts.
   - Discuss earth materials and Physico-chemical processes in nature.
   - Discuss natural and man-made disasters, hazards, and hazard management procedures.
   - Appreciate the environmental health aspects.
   - Discuss natural resources and their use.
   - Discuss global environmental changes.
   - Discuss environmental legislation.
7. **Brief list of topics to be covered**
   - Read and understand written passages.
   - Ask questions for clarification.
   - Apply scientific concepts and terminology.
   - Use a scientific calculator to perform mathematical calculations.
   - Apply the algebra, geometry, and trigonometry in solving problems in hydrology and hydrogeology.
   - Gain experience in the area of fluid mechanics.
   - Determine mathematical concepts needed to solve an application.
   - Perform mathematical calculations.
   - Use and interpret common mathematical symbols and concepts.

1. **Course number and name**
   45 140 - Medical Terminology
2. **Credits and contact hours**
   2 Credits and 2 Contact Hours (Lecture: 2 hrs)
3. **Instructor's or course coordinator's name**
   Prof. Hana AlMajed
4. **Text book, title, author, and year**
   - Medical Terminology: A Short Course, Davi-Ellen Chabner , Pub. Date: November 2011/ Edition 6. Publisher: Elsevier Health Sciences
   - Medical Terminology: A Programmed Approach, Paula Bostwick, 2008, Mc Graw Hill
5. **Specific course information**
   a) **Brief Description:** This course is intended to assist those studying in the fields of medicine and health care by learning a word-building system for defining, using, spelling, and pronouncing medical words. Thousands of words may be built by learning the Latin and Greek parts. This course is designed for students who wish to deal with workers on site (health environment), in hospitals offices.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** General compulsory course.
6. **Specific goals for the course**
   - Construction of medical terms, medical suffixes, medical term roots and medical prefixes.
   - Study of some of the body systems including the skeletal system; nervous system; digestive system; cardiovascular system; respiratory system; blood and urinary systems
7. **Brief list of topics to be covered.**
   - The technical language of medicine
   - Background vocabulary in medical terminology
   - Prefixes, suffixes and combining terms that cut across the anatomic systems.

1. **Course number and name:**
   07 104 - Art and Life
2. **Credits and Contact Hours:**
   2 Credits and 2 Contact Hours (Lecture: 2 hrs)
3. **Instructor's or course coordinator's name:** Course Development Team:
   Dr. Abdullah Al-Haddad
   Dr. Metwally Al-Desouki
4. **Text book, title, author, and year:**
   - No book required.
   - Other supplemental materials: Various Colors - Sketchbook
5. **Specific course information:**
   a) **Brief Description:** The course deals with introducing the fine arts and the arts of civilizations to a direct impact on human life and how to benefit from all this in building the emotional personality of the student and developing his artistic abilities.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** General elective course.
6. **Specific goals for the course:**
   - **Specific outcomes of instruction:** Building the student's personality by acquiring diverse aesthetic experiences, developing the student's ability to think creatively, providing opportunities to express his ideas through various visual means, encouraging the love of manual work and respect for it by practicing practical works.
7. **Brief list of topics to be covered**

1. **Course Number and Name:**
   13 153 - Music Culture
2. **Credits and Contact Hours:**
   2 Credits and 2 Contact Hours (Lecture: 2 hrs)
3. **Instructor's or Course Coordinator's Name**
4. **Textbook, Title, Author, and Year:**
   - "Global Music Cultures," Anna Lee, 2016
5. **Specific Course Information**
   a) **Brief Description:** Exploration of music cultures around the world, focusing on traditional and contemporary musical practices and their cultural contexts.
   b) **Prerequisites or Co-requisites:** None
   c) **Required, Elective, or Selected Elective:** General elective course.
6. **Specific Goals for the Course**
   a) **Outcomes of Instruction:**
      - Students will gain an understanding of various global music traditions.
      - Students will analyze the cultural significance of music in different societies.
      - Students will develop an appreciation for musical diversity.
   b) **Student Outcomes Addressed:**
      - Broaden knowledge of global music cultures and practices.
7. **Brief List of Topics to Be Covered**
      - Overview of global music traditions
      - Traditional music of Africa, Asia, and Latin America
      - Contemporary global music scenes
      - Music and cultural identity

1. **Course number and name:**
   15 114 - Introduction to Psychology
2. **Credits and contact hours:**
   2 Credits and 2contact hours (Lecture: 2 hrs)
3. **Instructor's or course coordinator's name:**
4. **Text book, title, author, and year:** No book required.
5. **Specific course information:**
   a) **Brief Description:** Students study definitions of the basic concepts related to psychology - the relationship between psychology and education in terms of the concept, and in terms of the subject and means and the relationship between them.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** General elective course.
6. **Specific goals for the course:**
   - Identify terms related to psychology.
   - Identify the relationship between psychology and education.
   - Realizing the importance and goals of psychology in practical life.
   - Identify the most important factors that affect the formation of human behavior.
   - Understanding and realizing the meaning of the individual differences that exist among people and knowing their types and characteristics.
   - Identify the meaning of people's personal intelligence, its characteristics, and the differences that exist between people in it.
   - Identify the meaning of learning, its conditions, and the relationship between these conditions.
7. **Brief list of topics to be covered**
   - Fields of psychology (fields) - factors that affect the formation of human behavior –
   - Intelligence (in terms of the concept - and its characteristics) and individual differences (in terms of the concept - types - and characteristics) –
   - Learning (in terms of the concept - the conditions for learning - the relationship between learning and motivation - the relationship between learning, maturity and training).

1. **Course number and name**
   22 101 - Basics of Management
2. **Credits and contact hours**
   3 Credits and 3 Contact Hours (Lecture: 3hrs)
3. **Instructor's or course coordinator's name**
4. **Text book, title, author, and year**
   None
5. **Specific course information**
   a) **Brief Description:** The course is fundamental for anyone wishing to study business administration or any other scientific and specialized field. It provides students with a solid and strong foundation in the principles and fundamentals of this field. The course covers the basics required for working in the administrative field at all levels, from secretarial positions to supervisors and the highest supervisory roles within an organization. This course helps students understand major functions and the roles of administrators, as well as minor functions, which positively impact their skills, abilities, and knowledge regardless of their job level, ultimately leading to the achievement of their goals.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** General elective course.
6. **Specific goals for the course**
   - Understand the basic concepts in management science such as profit and non-profit organizations, management, managers, and administrative functions like planning, organizing, directing, and controlling.
   - Recognize organizations as an introduction to management, individuals, and as a quantitative and Islamic approach.
   - Understand what management is and who a manager is, and how to set goals.
   - Master planning, setting policies, procedures, and administrative instructions, and based on that, be able to write an administrative plan.
   - Comprehend administrative organization, understand administrative supervision and responsibility, differentiate between types of authority, and distinguish organizational structures.
   - Grasp administrative direction, recognize types of leadership, motivation methods, and administrative communication.
   - Be able to write and draft official letters.
   - Learn methods of administrative control, its standards, how to measure and evaluate performance, and address deviations.
7. **Brief list of topics to be covered**
   - Concept of Organizations
   - Introduction to Management
   - Administrative Planning
   - Administrative Organization
   - Administrative Direction
   - Writing Letters and Reports
   - Administrative Control

1. **Course number and name**
   22 210 - Organizational Behavior
2. **Credits and contact hours**
   3 Credits and 3 Contact Hours (Lecture: 3 hrs)
3. **Instructor's or course coordinator's name**
   - Dr. Asil Al-Duaiji
   - Dr. Shaikha Al-Ayyanati
   - Dr. Anfal Al-Bader
4. **Textbook, title, author, and year**
   - Organizational Behavior and Successful Institutions, 2007. Dr. Jassim Al-Omran and Dr. Fatima Al-Duwaisan, Dar Al-Ilm Publishing and Distribution Company (AR)
   - Essentials of Organizational Behaviour, 2018. Stephen P. Robbins, Timothy A. Judge, and Katherine E. Breward. Pearson. Canadian edition. (e-copy).
   - Organizational Behavior, 2010. Don Hellriegel, and John W. Slocum, Jr. South-Western, Cengage Learning. 13th edition. (e-copy).
5. **Specific course information**
   a) **Brief Description:** The course provides students with essential knowledge on how to leverage the general and specific behaviors of employees, including identifying and correcting negative behaviors and enhancing positive ones. It covers optimal methods for leveraging these behaviors through interpersonal skills with subordinates or clients and includes learning about various theories such as leadership theory and the impacts of leaders on subordinates.
   b) **Prerequisites:** 22 101 Basics of Management
   c) **Required, Elective, or Selected Elective:** General elective course.
6. **Specific goals for the course**
   The course in Organizational Behavior aims to introduce readers to the key aspects of improving employee behavior to achieve the organization's current and future goals. This is done firstly by identifying behaviors and then scientifically and properly directing them towards the goals listed below. Additionally, the course covers many topics related to this field, as outlined in the attached plan.
   - The importance of studying individual behavior in various organizations.
   - The relationship between individual behavior and performance levels in these organizations.
   - How to guide and manage individual behavior to achieve organizational goals.
   - Learning, perception, and other crucial factors that influence individual behavior in organizations, whether positively or negatively.
   - Effective leadership theories and their application to improve individual behavior and, subsequently, organizational performance, while considering the surrounding social environment.
7. **Brief list of topics to be covered**
   - Students understand the nature, development, and objectives of organizational behavior for individuals and business organizations.
   - Students distinguish the concept of perception and factors related to stimuli and individuals.
   - Students comprehend the concept of motivation, its theories, and its relationship with needs and incentives.

Course number and name

24 157 - Computer Applications

1. **Credits and contact hours**

   2 Credits and 4 Contact Hours (Lab: 4 hrs)

2. **Instructor's or course coordinator's name**
3. **Text book, title, author, and year**
   - G.Harvey. *Excel 2002 for Dummies*. Publisher: For Dummies. Year: 2001. ISBN: 0764508229. Pages: 384. Required
   - D.Taylor. *Teach Yourself Microsoft Excel 2000*. Publisher: John Wiley & Sons. Year: 1999. ISBN: 0764532855. Pages: 358. Not Required
   - M.Norusis. *SPSS 12.0 Statistical Procedure Companion/with CD-ROM*. Publisher: Prentice Hall. Year: 2003. ISBN: 0131096729. Pages: 601. Required
4. **Specific course information**
   a) **Brief Description:** This course is a brief introduction to creating, manipulating, and analyzing data using Excel and SPSS software with emphasis on their applications to environmental data storage, organization and analysis.
   b) **Prerequisites**: 24 107 Introduction to Computers
   c) **Required, Elective, or Selected Elective:** General elective course.
5. **Specific goals for the course**
   - Create and manipulate worksheets.
   - Design, create and work with formulas, functions, and charts.
   - Perform "what-if" analysis.
   - Create and manipulate data files using SPSS.
   - Calculate statistic.
   - Produce statistical outputs
6. **Brief list of topics to be covered**
   - Apply scientific concepts and methods.
   - Interpret basic statistical data.
   - Introduction to Computer Literacy - basic computer systems, operating systems, Internet and email, word processing, spreadsheets, databases, presentation graphics and social computer use issues, keyboarding experience.

1. **Course number and name**
   22 104 - Establishments and Management of Small Projects
2. **Credits and contact hours**
   2 Credits and 2 Contact Hours (Lectures: 2hrs)
3. **Instructor's or course coordinator's name**
4. **Text book, title, author, and year**
   Textbook:

- إدارة المشروعات الصغيرة (الأساسيات والموضوعات المعاصرة)، أ. د. عبد العزيز عبد المحسن تقي وآخرون دار ابن النفيس للدعاية والإعلان والنشر والتوزيع
- إدارة المشروعات والمتاجر الصغيرة (أسس عملية وخطوات عملية)، د. عبد المحسن فهد الجسار، شركة مطبعة جرير

   Supplementary material:

- Entrepreneurship and Small Business, Start-up, Growth and Maturity. 2016. Fourth edition, Paul Burns, University of Bedfordshire, UK. (e-copy).
- Small Business Management Entrepreneurship and Beyond, 2011. Fifth edition, Timothy S. Hatten, Mesa State Collage. South-Western Centage Learning. (e-copy).

5. **Specific course information**
   a) **Brief Description:** Students enrolled in the Establishment of Small Projects course must familiarize themselves with the contents of this course and understand what the private sector requires. This includes how to establish and manage small retail businesses, how to set up small projects, the procedures for obtaining licenses, financing or financial support, and the state's contributions to these processes. Students will also learn to evaluate the merits of purchasing an existing project versus starting a new project from scratch until it is fully operational.
   b) **Prerequisites**: None
   c) **Required, Elective, or Selected Elective:** General elective course.
6. **Specific goals for the course**
   - Understand and recognize the importance of the role of private entrepreneurship in building a modern state.
   - Promote the culture of private entrepreneurship among students in various colleges of the authority.
   - Encourage and guide individual initiatives of students in the colleges who wish to engage in professional and craft work or establish and manage small projects.
   - Equip students with the necessary skills for managing, marketing, and financing small projects.
   - Foster a spirit of initiative and entrepreneurship among students.
7. **Brief list of topics to be covered**
   - Definition of a Small Project
   - Criteria for Distinguishing Small Projects
   - Forms of Ownership and Legal Structure for Small Projects
   - Characteristics of Small Projects
   - Entrepreneurship and Small Business Projects
   - Planning in Small Projects
   - Organization in Small Projects
   - Decision Making in Small Projects
   - Guidance and Leadership in Small Projects
   - Control and Performance Evaluation in Small Projects

- Human Resource Management in Small Projects
- Financial Management in Small Projects
- Marketing Management in Small Projects
- Feasibility Study for Small Projects
- Credit and Collection Systems in Small Projects

1. **Course number and name**
   65 101 - Car Mechanics
2. **Credits and contact hours**
   1 Credits and 2 Contact Hours (Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Nawwaf A. Alheefi
4. **Text book, title, author, and year**
   - Crouse, William and Anglin, Donald, Automotive Mechanics.
   - James E. Duffy, Modern Automotive Technology, The Goodheart- Willcox Company, Inc., Tinly Park, Illinois.
5. **Specific course information**
   a) **Brief Description:** This course is designed to assist students who are studying in the field of Automotive workshop safety rules. Operating principles and working cycles for automotive engines. It deals with the Function, components, and operation of engine parts. Function, components, operation and troubleshooting of different automotive systems. Automotive emissions and their control devices. Automotive maintenance schedule.
   b) **Prerequisites:** None.
   c) **Required, Elective, or Selected Elective:** General elective course.
6. **Specific goals for the course**
   - Recognize the automotive workshop safety rules.
   - Understand the cycles for automotive engines.
   - Compare the different engine types.
   - Identify the functions and components of engine parts.
   - Understand how automotive engine works.
   - List the functions, and components of different automotive systems.
   - Discover how automotive transmission line works.
   - Diagnose and troubleshoot simple automotive faults.
   - Recognise automotive emissions and their control devices.
   - Identify automotive maintenance schedule
7. **Brief list of topics to be covered**
   - automotive workshop safety rules
   - automotive engine working cycles
   - components and operation of engine parts
   - automotive emissions and their control devices
   - automotive maintenance schedule

1. **Course number and name**
   42 240 - Anatomy and Physiology
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Prof. Hana AlMajed
4. **Text book, title, author, and year**
   - Hole's Human Anatomy & Physiology by David Shier, Jackie Butler and Ricki Lewis (Jan 3, 2012)
   - Memmier, R.L., Wood, D.L. (2010), Workbook for Structure and Function of the Human Body. 4th Ed., J.B. Lippincott company, Philadelphia,USA.
5. **Specific course information**
   a) **Brief Description:** This course is designed to assist students who are studying in the field of environmental health care to understand the structure and organization of various systems of the human body. It deals with the structure and function of the musculoskeletal system, urinary system, nervous system and digestive system.
   b) **Prerequisites:** 42 140 Medical Terminology.
   c) **Required, Elective, or Selected Elective:** Supportive Compulsory Course.
6. **Specific goals for the course**
   - Identify cells of human body
   - Explain the skeletal system
   - Explain the nervous system
   - Describe the organization of the nervous system
   - Identify the structure of main divisions of the brain briefly
   - Identify the parts of brain on the system model
   - Name the major parts of the eye
   - Describe briefly the hearing and equilibrium process
   - Describe the blood and its functions
   - Describe the circularly system
   - Illustrate the immune system
   - Explain the respiratory system
   - Illustrate the digestive system
   - Describe the organs of the digestive tract
7. **Brief list of topics to be covered**
   - the major components of human cell
   - function of each type of bone
   - central nervous system
   - blood types, heart rate and blood pressure
   - diseases of immune system
   - the respiratory cycle and digestive system

1. **Course number and name**
   NSC 113 General Physics
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lecture: 2hrs and Lab: 2hrs)
3. **Instructor's or course coordinator's name**
   Dr. Noura AlAjmi
4. Text book, title, author, and year
   - W.Griffith. *Physics of Everyday Phenomena*. Required
   - M.Sternheim & J.Kane. *General Physics*. Not Required
5. Specific course information
   a. **Brief Description:** Study of principles and applications of concepts in mechanics, energy and heat, wave motion, sound, light and waves, electricity and principles of nuclear physics, and dimensional analysis in problem-solving. Students of physics gain a conceptual understanding of physical systems. Students use algebra, simple statistics, and trigonometry to understand forces. They engage in experimentation, scientific reasoning and logic, and data analysis and evaluation.
   b. **Prerequisites:** None
   c. **Required, Elective, or Selected Elective:** Supportive Compulsory Course.
6. Specific goals for the course
   - Demonstrate understanding of the nature of motion and its graphical representation.
   - Demonstrate understanding of applications of energy conservation laws.
   - Demonstrate understanding of wave theory and its application to optics and spectral analysis.
   - Demonstrate understanding of nuclear reactions and their applications to nuclear energy generation and radiation.
7. Brief list of topics to be covered
   - Utilize math processes to solve problems.
   - Apply scientific concepts and terminology.
   - Use a scientific calculator to perform mathematical calculations.
   - Develop familiarity with the scientific method.
   - Differentiate between gravitational, electrical, and magnetic forces.
   - Understand the basics of sound, light, and electromagnetic waves as they relate to our lives.
   - Ask questions for clarification.
   - Use mathematical symbols and apply mathematical concepts and methods.

1. Course number and name

46 116 - General Chemistry

2. Credits and contact hours

3 Credits and 4 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)

3. Instructor's or course coordinator's name

Dr. Alya Alotaibi

4. Text book, title, author, and year

− C.Houk. Chemistry: Concepts and Problems: A Self-Teaching Guide. Edition: 2nd. Publisher: John Wiley & Sons. ISBN: 0471121207. Pages: 320. Required

− K.Whitten. General Chemistry (with CD-ROM and Info Trac). Edition: 7th. Publisher: Thomson Corporation. Year: 2004. ISBN: 0534408605. Pages: 1195. Not Required

− J.Wills & R.Mitchell. General Chemistry Lab Manual. Publisher: Morton Publishing Co. Year: 1987. ISBN: 0895821621. Pages: 266. Required

5. Specific course information

a) Brief Description: This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and chemical solutions.

b) Prerequisites: None

c) Required, Elective, or Selected Elective: Supportive Compulsory Course.

6. Specific goals for the course

- Demonstrate understanding of fundamental chemical principles and approaches.
- Demonstrate problem-solving skills related to general chemistry.
- Demonstrate quantitative knowledge of the properties and reactions of chemical compounds.

7. Brief list of topics to be covered

- Apply scientific concepts and terminology.
- Use a scientific calculator to perform mathematical calculations.
- Describe the concept of atoms and molecules and their relationship to all matter.
- Demonstrate the concept of balanced chemical reactions.
- Describe the symbols for the importance of the major atoms found in living things: C, H, O, N, Na, and K.
- Differentiate the structure and function of carbohydrates, lipids, proteins, and nucleicacids.
- Describe the concept of pH, acidity, and alkalinity.
- Integrate the fundamental chemistry conc. of measurement, calc., observation, and occupational applications.

1. Course number and name

46 150 - General Biology

2. Credits and contact hours

3 Credits and 4 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)

3. Instructor's or course coordinator's name

Dr. Amani AlShatti

4. Text book, title, author, and year

- D.Krogh. Biology: A Guide to Natural World. Edition: 2nd. Publisher: Prentice Hall. Year: 2001. ISBN: 0130921785. Pages: 772. Required

- Morgan & Carter. Investigating Biology: A Laboratory Manual for Biology. Edition: 3d. Publisher: Addigon Wesley Longman, Inc. Year: 1999. Required

5. Specific course information

a) **Brief Description:** This course is designed to provide the student with a background in the basic principles of biology. It will acquaint students with the classification, structure, and function of living organisms. It will enable students to identify representative members of different taxonomic groups of living organisms, as well as the structural characteristics of these groups. Emphasis is made on ecology, population, cellular and organism biology, genetics, evolution, the diversity of life, and how you relate to your environment.

b) **Prerequisites:** None

c) **Required, Elective, or Selected Elective:** Supportive Compulsory Course.

6. Specific goals for the course

- Demonstrate knowledge of structural and functional aspects of major molecules of life.
- Appreciate the highly structured composition of cells.
- Demonstrate understanding of the diversity of life as exemplified by prokaryotes,
- protists, fungi, plants and animals.
- Demonstrate knowledge of plants and animals' body systems, structure and functions.
- Appreciate major life processes: photosynthesis, respiration, metabolism and
- reproduction.
- Apply genetic knowledge to the understanding of biodiversity.
- Demonstrate understanding of major ecological concepts.

7. Brief list of topics to be covered

- Discuss basic concept of biology – life.
- Apply scientific concepts and terminology.
- Develop familiarity with the scientific method.
- Explain the cell concept in the organization of living things.
- Describe how cells divide and differentiate into specialized cells with differing functions.
- Describe the major role of each system of the body.
- Explain the molecular basis of heredity: DNA.

1. **Course number and name**
   46 155 - General Microbiology
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Amani AlShatti
4. **Text book, title, author, and year**
   - Madigan, et. al. *Brocks Biology of Microorganisms*. Edition: 10th. Publisher: Prentice Hall. Required
   - Tortora, et. al. *Microbiology: An Introduction*. Required
   - Harvey, et. al. *Lippincott's Illusrated Reviews: Microbiology*. Publisher: Lippincott Williams & Wilkins. Year: 2001. Required
   - G. Burton & P. Engelkirk. *Microbiology for the Health Sciences*. Edition: 6th. Year: 2000. Not Required
5. **Specific course information**
   a) This course is designed to expose students to the general concepts of microbiology, including the morphology, physiology, and genetics of microbes and the importance of microbial activities from medical, industrial, and ecological standpoints.
   b) **Prerequisites:** 46 155 General Biology
   b) **Required, Elective, or Selected Elective:** Supportive Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate knowledge of major discoveries and landmarks in the history of microbiology.
   - Investigate the structure of microorganisms.
   - Develop skills in microbial growth and identification.
   - Demonstrate understanding of the ubiquity of the microorganisms.
   - Demonstrate knowledge of microbial activity in the environment and their use in industry.
7. **Brief list of topics to be covered**
   - Apply scientific concepts and terminology.
   - Create documents following appropriate layout and design.
   - Applying knowledge to basic principles of treatment and prevention of disease in their occupation field.
   - Critical thinking skills and strategies for solving problems: interpreting microbiology laboratory data, demonstrating understanding of isolation procedures in a hospital setting, predicting why and how public health strategies prevent community outbreaks of infectious diseases. Students work safely with microorganisms in the laboratory and apply this skill to preventing disease in the health care setting and for their own safety.
   - Work successfully in laboratory teams and, utilizing computers, complete laboratory data analysis.
   - Evaluate biological concepts as they relate to the microorganism's cell structure and functions.
   - Apply scientific concepts and methods.

1. Course number and name

46 246 - Analytical Chemistry

2. Credits and contact hours

3 Credits and 60 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)

3. Instructor's or course coordinator's name

Dr. Alya Alotabi

4. Text book, title, author, and year

− G.Christian. Fundamentals of Analytical Chemistry. Required

− G.Schwedt. The Essential Guide to Analytical Chemistry. Edition: 2nd. Publisher: John Wiley & Sons. Year: 1997. ISBN: 0471974129. Pages: 260. Not Required

− K.Crawford et.al. Problem Solving in Analytical Chemistry. Publisher: Springer Verlag. Year: 1999. ISBN: 1870343468. Pages: 159. Required

− D.Skoog. Analytical Chemistry: An Introduction. Edition: 7th. Publisher: International Thomson Publishing. Year: 2000. ISBN: 0030584590. Pages: 859. Not Required

5. Specific course information

a) **Brief Description:** Study of the fundamental principles of quantitative analytical chemistry, including basic statistics. An intensive laboratory experience that applies these principles to gravimetric, volumetric, colorimetric, chromatographic, and electroanalytical determination. Analytical chemistry concerns itself with the techniques and methods that answer the questions "What?" and "How much?" in the analysis of the chemical composition of matter. "What?" is the province of qualitative analysis, while "How much?" is the province of quantitative analysis. In this course, our focus will be on "How much?" -- the problems associated with quantifying the amount of a species present in a given sample. A thorough understanding of quantitative analysis is necessary for virtually all physical and biological scientists who are obliged to collect analytical data and apply statistical treatments to the data. A study of quantitative analysis is also of benefit in that it places the highest premium upon careful, orderly work and intellectually honest and fair observation. There are skills worthy of cultivating regardless of one's ultimate field of endeavor.

b) **Prerequisites:** 46 116 General Chemistry

c) **Required, Elective, or Selected Elective:** Supportive Compulsory Course.

6. Specific goals for the course

- Develop basic skills in statistical analysis related to analytical error treatment.
- Develop quantitative knowledge of chemical compounds in terms of properties, purity,
- and chemical reactions.
- Develop laboratory skills in analyzing single and multi-component solutions.
- Develop skills in laboratory methods: spectrophotometry, chromatography and atomic
- absorption.

7. Brief list of topics to be covered

- Apply scientific concepts and terminology.
- Use a scientific calculator to perform mathematical calculations.

- Describe the symbols for the importance of the major atoms found in living things: C, H, O, N, Na, and K.
- Differentiate the structure and function of carbohydrates, lipids, proteins, and nucleic acids.
- Integrate the fundamental chemistry conc. of measurement, calc., observation, and occupational applications.

1. **Course number and name**
   42 107 – Introduction to First Aid

2. **Credits and contact hours**
   2 Credits and 4 Contact Hours (Lab: 4 hrs)
3. **Instructor's or course coordinator's name**
4. **Text book, title, author, and year**
5. **Specific course information**
   a) **Brief Description:** This course prepares students to be able to handle basic medical emergencies confidently.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** Supportive compulsory courses requirement
6. **Specific goals for the course**
   - Learn the basics of First Aid such as ABCs (Airway, Breathing, Circulation).
   - Learn how to respond in case of medical emergencies.
   - Performing CPR and using automated external defibrillators.
   - Treating cuts, burns, and severe bleeding.
   - Recognizing the symptoms that lead to heart attacks, strokes, seizures, and diabetic shock.
   - Learn how to manage the emergencies stated above.
   - Assembling and using first aid supplies.
7. **Brief list of topics to be covered**

1. **Course number and name**
   44 111 - Environmental Science
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Kasem Elfadli
4. **Text book, title, author, and year**
   - W.P. Cunningham & M.A. Cunningham. *Principle of Environmental Science*. Edition: 2nd. Publisher: McGraw-Hill. Required
   - L. Sigimondi. *Environmental Science Lab Manual*. Required
   - G.T. Miller. *Environmental Science: Sustaining the Earth*. Publisher: Wadsworth Publishing Company. ISBN: 0534135480. Not Required
   - L. Rockett & G. Miller. *Laboratory Manual for Miller's Living in the Environment, Environmental Science, and Sustaining the*. Edition: 4th. Publisher: Wadsworth Publishing. Year: 1998. ISBN: 053417809X. Required
5. **Specific course information**
   a) **Brief Description:** This course intended to provide a background of the basic chemical, physical and biological concepts and processes that help to understand the environment and how it works; analyze the relationship between humans and the environment, including the causes of environmental problems and the consequences of human impact on the environment; identify major environmental problems and pros and cons of possible solutions.
   b) **Prerequisites:** 44 105 General Geology
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Develop an understanding of the environment around us and how it works.
   - Apply basic chemical, physical and biological concepts to analyze the environmental problems and possible solutions.
   - Develop an understanding of the relationship between humans and the environment/
   - Analyze the causes and consequences of major environmental problems.
   - Discuss the pros and cons of possible solutions to environmental problems.
   - Develop a global perspective of the local environmental problems.
   - Follow current developments in the area of the environment.
7. **Brief list of topics to be covered**
   - Read and understand written passages.
   - Apply scientific concepts and terminology.
   - Use a scientific calculator to perform mathematical calculations.
   - Interpret basic statistical data.
   - Develop familiarity with the scientific method.
   - Ask questions for clarification.
   - Use and interpret common mathematical symbols and concepts.

1. **Course number and name**
   44 183 - Principles of Health Education
2. **Credits and contact hours**
   2 Credits and 3 Contact Hours (Lectures: 1 hr and Lab: 2 hours)
3. **Instructor's or course coordinator's name**
   Prof. Faisal AlSharifi
4. **Text book, title, author, and year**
   − Promoting Health: A Practical Guide to Health Education. Required
   − J. Butler. Principles of Health and Promotion. Edition: 2nd. Publisher: Morton Publishing Company. Not Required
   − R. Eberst. Foundations of Health Education. Publisher: Coyote Press. Year: 1999. Not Required
5. **Specific course information**
   a) **Brief Description:** This course is designed to introduce philosophy, ethics, and principles of health education practice in schools, communities, worksite and hospital settings. It provides students with background information and application on planning, implementation, and evaluation of health promotion programs in various settings.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Distinguish between several philosophical approaches to the practice of health education.
   - Apply "state of art" advances in health education to professional practice.
   - Employ holistic health approach to community health status definition.
   - Integrate professional standards and ethics into the practice of the educator.
   - Explore status of professional health education practices of local agencies.
   - Differentiate between disease prevention, health promotion, health education and
   - wellness enhancement.
   - Identify seven areas of health educator responsibilities.
   - Advocate for health education activities and programs.
   - Integrate effective health education practices into professional careers.
   - Plan, organize and implement health education models.
7. **Brief list of topics to be covered**
   - Use various communication strategies to share meaning orally.
   - Introduction to Computer Literacy - knowledge of introductory computer concepts through exploration and hands-on application.
   - The concepts explored include basic computer systems, operating systems, and keyboarding experience.
   - Apply critical thinking and problem-solving skills.
   - Communicate effectively through writing and speaking.

1. **Course number and name**
   44 201 - Sustainable Development
2. **Credits and contact hours**
   2 Credits and 3 Contact Hours (Lectures: 1hr and Lab: 2hrs)
3. **Instructor's or course coordinator's name**
   Dr. Ali Khuraibit
4. **Text book, title, author, and year**
   - L. Canter. *Environmental Impact Assessment*. Edition: 2nd. Publisher: McGraw-Hill, Inc.. Year: 1996. ISBN: 0070097674. Pages: 660. Required
   - *World Commission on Environment and Development: Our Common Future*. Publisher: Oxford University Press. Year: 1987. Not Required
   - IUCNC. *Carring for the Earth: A Strategy for Sustainable Living*. Publisher: IUCNC, UNEP, WWF. Year: 1991. Required
   - UNDP. *Earth Summit, Agenda 21*. Edition: 1991. Publisher: UNDP. Required
   - D. Meadows. *The Nature of Exponential Growth*. Year: 1972. Not Required
5. **Specific course information**
   a) **Brief Description:** This course centers on the relationship between economic development and the environment, focusing on the concept of sustainable development. Time will be devoted to defining the term, examining its historical context, evaluating its meaning from various perspectives, and assessing progress and prospects for its implementation. One premise of the course is that implementing sustainable development will require action at all levels of human activity: international, national, state, local, and individual. Sustainability itself has been elevated to the status of a new global environmental and social ethic, it is the goal that guides and directs our actions. This course provides a critical examination of sustainability concepts and insight into contemporary issues in environmental policy and management.
   b) **Prerequisites:** 44 111 Environmental Science
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate an understanding of the concept of sustainability.
   - Apply sustainability concepts to the idea of human development.
   - Demonstrate knowledge of the history of sustainable development theory.
   - Apply the principles of sustainability to a real-world context.
   - Conduct a critical review of the principles of sustainability.
7. **Brief list of topics to be covered**
   - Use various communication strategies to share meaning orally.
   - Read and understand written passages.
   - Identify the value of working cooperatively with others.
   - Recognize appropriate sources for current information.
   - Apply environmental management practices.
   - Apply critical review methods.

1. Course number and name

46 211 Introduction to Environmental Engineering I

2. Credits and contact hours

2 Credits and 3 Contact Hours (Lecture: 1 hr and Lab: 2hr)

2. Instructor's or course coordinator's name

Dr. Soud AlShammari

4. Text book, title, author, and year

- M.Davis & D.Cornwell. Introduction to Environmental Engineering. Edition: 3d. Publisher: McGraw-Hill. Year: 1999. ISBN: 007238777. Pages: 919. Not Required
- C.Jensen. Interpreting Engineering Drawings. Edition: 6th. Publisher: Delmar Learning. Year: 2001. ISBN: 0766828972. Pages: 512. Required
- S.Matar & L.Hatch. Chemistry of Petrochemical Processes. Edition: 2nd. Publisher: Gulf Professional Publishing. Year: 2001. ISBN: 0884153150. Pages: 356. Not Required

5. Specific course information

a) **Brief Description:** A course designed to introduce students to the requirements for general engineering: introduction to engineering regulations and ethics, engineering graphics and blueprints interpretation, engineering terminology and abbreviations, and environmental systems analysis.
b) **Prerequisites:** 44 111 Environmental Science
c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.

6. Specific goals for the course

- Demonstrate knowledge of engineering terminology, abbreviations, and technical concepts.
- Describe legal and ethical issues in engineering.
- Interpret engineering drawings and blueprints.
- Analyze basic components of engineering systems.
- Describe basic physical and chemical processes in oil refinery and water treatment.

7. Brief list of topics to be covered

- Apply mathematical symbols and concepts to the area of study.
- Apply scientific concepts and terminology.
- Communicate using problem-solving skills and interpersonal skills in group settings.
- Use the Metric System of measurement.
- Use a scientific calculator to perform mathematical calculations.
- Understand the basics of sound, light, and electromagnetic waves as they relate to our lives.

1. Course number and name

44 219 Principles of Ecology

2. Credits and contact hours

3 Credits and 4 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)

3. Instructor's or course coordinator's name

Dr. Nabeel Alkhulaifi

4. Text book, title, author, and year

− J. Brower. Field and Laboratory Methods for General Ecology.

− M. Molles,Jr.. Ecology: Concepts and Applications. Edition: 2nd. Publisher: McGraw-Hill. Year: 2001. ISBN: 0072493526. Pages: 608. Required

− G.Cox. Laboratory Manual of General Ecology. Not Required

− M. Allaby. A Dictionary of Ecology (Oxford Paperback Reference). Edition: 2nd. Publisher: Oxford Press. Year: 1999. ISBN: 0192800787. Pages: 448. Required

− R. Smith & T. Smith. Elements of Ecology. Not Required

5. Specific course information

a) **Brief Description**: This course should enable you to understand key concepts, general principles, and terminology fundamental to ecology. You should gain a working knowledge of the interdisciplinary nature of ecology and become acquainted with approaches to undertaking ecological research. We will examine ecological processes at the individual, community, and ecosystem levels and discuss both abiotic and biotic factors involved in the interactions between organisms and their environment. Field and laboratory exercises will give you hands-on experience working with live organisms and applying ecological methods.

b) **Prerequisites:** 44 105 General Geology

c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.

6. Specific goals for the course

- Develop skills for ecological experiment design and execution.
- Conduct sampling and analysis of ecological samples.
- Conduct population estimation of the animal population.
- Conduct vegetation analysis.
- Analyze ecological graphs and tables.

7. Brief list of topics to be covered

- Apply scientific concepts and terminology.
- Read and understand written passages.
- Interpret basic statistical data.
- Differentiate among organisms, their role in the biosphere and their relationship to each other.
- Apply this knowledge to the responsible utilization of earth's resources and appropriate preservation of the environment.
- Work safely and carefully in a laboratory setting and apply this skill to acquiring and interpreting data in their occupational field.
- Develop familiarity with the scientific method.

1. Course number and name

44 221 Introduction to Environmental Engineering II

2. Credits and contact hours

2 Credits and 3 Contact Hours (Lecture: 1 hr and Lab:)

3. Instructor's or course coordinator's name

Dr. Ali Aldamkhi

4. Text book, title, author, and year

- M.Davis. Principles of Environmental Engineering and Science. Publisher: McGraw-Hill. Year: 2004. ISBN: 0071194495. Pages: 704. Required
- M.Davis & D.Cornwell. Introduction to Environmental Engineering. Edition: 3d. Publisher: McGraw-Hill. Year: 1999. ISBN: 0072387777. Pages: 919. Not Required

5. Specific course information

a) **Brief Description:** Introduction to environmental engineering principles and survey of environmental problems and applications.
b) **Prerequisites:** 44 211 Introduction to Environmental Engineering I
c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.

6. Specific goals for the course

- Demonstrate knowledge of air pollution control engineering systems.
- Demonstrate knowledge of solid and hazardous waste management systems.
- Demonstrate knowledge of water supply engineering systems.
- Demonstrate knowledge of wastewater treatment systems.
- Calculate mass balance for a variety of engineering systems.

7. Brief list of topics to be covered

- Apply mathematical symbols and concepts to area of study.
- Perform the four basic operations with integers.
- Use given formula(s) to solve problems.
- General Education Chemistry and Physics.
- Microbiology.

Introduction to Atmospheric Science

1. **Course number and name**
   44 222 - Introduction to Atmospheric Science
2. **Credits and contact hours**
   2 Credits and 3 Contact Hours (Lectures: 1 hr and Lab: 2)
3. **Instructor's or course coordinator's name**
   Dr. Kasim AlFadhli
4. **Text book, title, author, and year**
   - R.G. Barry. *Atmosphere, Weather and Climate*. Edition: 8 Ed. Publisher: Routhledge. Year: 2003. ISBN: 0415271711. Required
   - C. Ahrens. *Meteorology Today*. Edition: 7th. Publisher: Brooks/Cole Publishers. Year: 2003. Required
5. **Specific course information**
   a) **Brief Description:** This course is a study of the atmosphere and how it works. It intends to provide a comprehensive background in basic meteorology and its tools and methods.
   b) **Prerequisites:** 46 113 General Physics
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Become familiar with the concept of atmosphere.
   - Build up a technical vocabulary related to meteorology.
   - Apply science and art of weather analysis.
   - Analyze the Earth-Sun relationship.
   - Analyze atmosphere-environment relationship.
   - Show understanding of global changes and human impact on weather and climate.
7. **Brief list of topics to be covered**
   - Apply scientific concepts and terminology.
   - Analyze synoptic map.
   - Read charts.
   - Recognize scientific symbols.
   - Perform the four basic operations with integers.
   - Use a scientific calculator to perform mathematical calculations.
   - Structure and processes in the atmosphere.
   - Earth-Sun relationship.
   - Atmosphere-environment relationship and recent global climate changes, specifically those induced by human activity.

1. **Course number and name**
   42 226 Occupational Health and Safety
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2hrs)
3. **Instructor's or course coordinator's name**
   Dr. Abdullah Alabdulhadi
4. **Text book, title, author, and year**
   - Levy, B. S., Wegman, D. H., Baron, S. H. and Sokas, R. K., Editors. Occupational and Environmental Health: Recognizing and Preventing Disease and Injury (Seventh Edition). New York, NY: Oxford University Press, 2017. ISBN 978-0-19-539788-8.
   - Anna, D.H., Editor. The Occupational Environment - Its Evaluation, Control, and Management. AIHA, Fairfax, Virginia, 2011. ISBN 978-1-935082-15-6.
5. **Specific course information**
   a) **Brief Description:** The specific areas and the broad scope in methods, materials, and problems in occupational safety programming with special emphasis on organization and implementation of injury prevention and control techniques. It examines scientific determinations of environmental risks and explores how such determinations are evaluated. It employs risk analysis to integrate technical knowledge in hazard identification and exposure assessment to provide a more rational basis for environmental policies.
   b) **Prerequisites:** 42 240 Anatomy and Physiology
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate the ability to critically review a peer-reviewed paper relevant to occupational health and safety and facilitate an inclusive class discussion.
   - Recognize the interrelatedness of public health, management, employees and the government to the goals of occupational health and safety.
   - Demonstrate a base of knowledge in the recognition and assessment of health and safety hazards in the workplace and across major industries.
   - Apply a conceptual framework to the practice of occupational health and safety.
   - Discuss the roles and functions of the occupational health and safety professional in practice and relative to a conceptual framework.
7. **Brief list of topics to be covered**
   - Introduction to OSHA
   - Managing Safety and Health May include Injury and Illness Prevention Programs, job site inspections, accident prevention programs, management commitment and employee involvement, worksite analysis, hazard prevention and control, accident 4 investigations, how to conduct safety meetings, and supervisory communication.
   - Walking and Working Surfaces, including fall protection
   - Exit Routes, Emergency Action Plans, Fire Prevention Plans, and Fire Protection
   - Personal Protective Equipment (PPE)
   - Materials Handling and Ergonomics
   - Hazard Communication

1. **Course number and name**
   44 229 Desert Ecosystems
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 and Lab: 2)
3. **Instructor's or course coordinator's name**
   T. Intesar AlTaher
4. **Text book, title, author, and year**
   - Goudie & J. Wilkinson. *The Warm Desert Environment*. Publisher: Cambridge University Press. Year: 1974. ISBN: 052129105. Required
5. **Specific course information**
   a) This is a short introduction to all aspects of deserts, including climatic factors, terrains, vegetation, surface forms and processes, water, and desert economics.
   b) Prerequisites: 44 219 Principles of Ecology
   c) Required, Elective, or Selected Elective: Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate understanding of the science of climate.
   - Build up a technical vocabulary related to climatology.
   - Apply climatology as a tool in identifying various environmental issues and global changes.
   - Apply physical atmospheric processes to the evaluation of environmental phenomena.
   - Analyze the effect of climatic factors on the distribution of ecosystems.
   - Apply atmospheric dynamics to cause and effect analysis of the atmosphere-environment interrelationship.
7. **Brief list of topics to be covered**
   - Apply scientific concepts and terminology.
   - Ask questions for clarification.
   - Use the writing process to prepare and present written documents.
   - Read and understand written passages.
   - Communicate effectively.
   - Demonstrate a knowledge of the unity and diversity of life and the dynamic relationship between organisms and their environment.

1. **Course number and name**
   44 236 - Environmental Sampling and Analysis I
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Halima Alkandari
4. **Text book, title, author, and year**
   - **Environmental sampling** and **analysis**: Lab manual. Maria Csuros, CRC Press, Inc., New York, NY, (1997), 373 Pages, [ISBN No.:1-56670-178-3].
   - **Analytical Chemistry 7th Edition.** Gary D. Christian, Purnendu K. Dasgupta and **Kevin** A. Schug. (2013). Publisher John Wiley & Sons. Format Hardcover 848 pages. ISBN 978-0-470-88757-8.
5. **Specific course information**
   a) **Brief Description:** This is first of two courses in sampling and analysis of environmental samples. It teaches students the theory and application of environmental sampling and analysis techniques. The course introduces students to the instrumentation and techniques used to assess air, water, and soil quality. Lecture focuses on sampling, statistics, the operational theory of different measurement techniques, and the relevant chemical reactions. In the laboratory, students apply this to the quantitation and identification of various environmentally significant compounds. Emphasis is on field and laboratory analysis of chemical and physical agents found in the occupational and ambient environments.
   b) **Prerequisites:** 46 246 Analytical Chemistry
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - General Operation Introduction to Chemical Analysis Laboratory Safety Quality Assurance of Chemical Measurement Laboratory Apparatus.
   - Reagents, Standards Laboratory Techniques Steps in Chemical Analysis Data Quality Evaluation and Approval of Analytical Data Analytical Procedures.
   - Physical Properties Inorganic Non-Metallic Constituents Appendices Laboratory First Aid Salinity Determination by Hydrometric Method Logbook Forms and Useful Tables Documentation Forms for Quality Control Data Index.
7. **Brief list of topics to be covered**
   - Sampling Error vs. Analytical Error During Data Acquisition.
   - Environmental Sampling and Analysis.
   - Concentration Units.
   - Common Organic Pollutants and Their Properties.
   - Standard Calibration Curve.

1. **Course number and name**
   44 306 - Environmental Sampling and Analysis II
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Halima Alkandari
4. **Text book, title, author, and year**
   - **Environmental sampling** and **analysis**: Lab manual. Maria Csuros, CRC Press, Inc., New York, NY, (1997), 373 Pages, [ISBN No.:1-56670-178-3].
   - **Analytical Chemistry 7th Edition.** Gary D. Christian, Purnendu K. Dasgupta and **Kevin** A. Schug. (2013). Publisher John Wiley & Sons. Format Hardcover 848 pages. ISBN 978-0-470-88757-8.
5. **Specific course information**
   a) **Brief Description:** This is second of two courses in sampling and analysis of environmental samples. It teaches students the theory and application of environmental sampling and analysis techniques. The course introduces students to the instrumentation and techniques used to assess air, water, and soil quality. Lecture focuses on sampling, statistics, the operational theory of different measurement techniques, and the relevant chemical reactions. In the laboratory, students apply this to the quantitation and identification of various environmentally significant compounds. Emphasis is on field and laboratory analysis of chemical and physical agents found in the occupational and ambient environments.
   b) **Prerequisites:** 46 155 General Microbiology and 44 236 Environmental Sampling and Analysis I
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - This course presents a ''know why'' rather than a ''know how'' strategy.
   - The framework of environmental sampling and analysis and the importance for the acquisition of scientifically reliable and legally defensible data.
   - Foundation of the analytical process, tools, and computational methods and resources.
   - Illustrate with problems that bring realism to the practice and importance of analytical chemistry. It is designed for undergraduate college students majoring in chemistry and in fields related to chemistry.
7. **Brief list of topics to be covered**
   - Analytical Objectives, or: What Analytical Chemists Do.
   - Basic Tools and Operations of Analytical Chemistry.
   - Statistics and Data Handling in Analytical Chemistry.
   - Stoichiometric Calculations.
   - General Concepts of Chemical Equilibrium.

1. **Course number and name**
   44 312 Remote Sensing and GIS
2. **Credits and contact hours**
   2 Credits and 3 Contact Hours (Lectures: 1 hr and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Mahdi Gholoum
4. **Text book, title, author, and year**
   - T.Avery. *Fundamentals of Remote Sensing and Airphoto Interpretation*. Edition: 5th. Publisher: Prentice Hall. Year: 1992. ISBN: 0023050357. Pages: 472. Required
   - W.Rees. *Physical Principles of Remote Sensing*. Publisher: Cambridge University Press. Year: 2001. ISBN: 0521669480. Not Required
5. **Specific course information**
   a) **Brief Description:** This course is designed to introduce students to a rapidly growing technology of the satellite imagery used in remote sensing as applied to environmental studies with emphasis on the Saudi Peninsula area: detection, identification, and analysis of objects and features, fundamental principles, and processes involved in acquiring and interpreting aerial photographs, and applying the data from these images to specific situations. In addition, GIS technology will be introduced as related to GPS and map interpretations.
   b) **Prerequisites:** 44 107 Introduction to Computers
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate knowledge of principles of photogrammetry.
   - Demonstrate knowledge of aerial photographs acquisition.
   - Describe sensors used in remote sensing.
   - Demonstrate knowledge of principles of GIS.
   - Demonstrate knowledge of remote sensing applications.
7. **Brief list of topics to be covered**
   - Apply scientific concepts and terminology.
   - Recognize the role of science in day-to-day personal decisions.
   - Technical Physics - light, electricity, and magnetism.
   - Introduction to Computer Literacy - knowledge of introductory computer concepts through exploration and hands-on application. The concepts explored include basic computer systems, operating systems, and keyboarding experience.

1. **Course number and name**
   44 319 Marine Environment
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Ali Khuraibit
4. **Text book, title, author, and year**
   - P. Pinet. *Invitation to Oceanography*. Edition: 3d. Not Required
   - T. Garisson. *History of Oceanography: An Invitation to Marine Science*. Edition: 4th. Year: 2000. Required
5. **Specific course information**
   a. **Brief Description:** This course examines physical, chemical, geological and biological aspects of the oceans, including the formation of the earth and oceans, a brief history of the science of oceanography, the concept of plate tectonics and how the earth looks today, basic chemistry of seawater and the physics of sound and light in water and ocean currents and the way the oceans determine our climate. Special emphasis is on marine biology: nutrient cycling and adaptations to the marine environment, primary productivity and oceanic food webs, primary consumers or zooplankton, and then invertebrate animals, fish and marine mammals, marine communities and marine resources and pollution of the ocean
   b. **Prerequisites:** 44 219 Principles of Ecology
   c. **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Appreciate scientific method through examples of oceanographic discoveries.
   - Demonstrate understanding of basic principles of marine science: plate tectonics, marine chemistry and physics, and fundamentals of marine biology.
   - Classify marine provinces.
   - Appreciate role of ocean-atmosphere interaction in controlling atmospheric circulation,
   - weather and climate.
7. **Brief list of topics to be covered**
   - Apply listening skills to various communication situations.
   - Apply scientific concepts and terminology.
   - Read and understand written passages.
   - Develop familiarity with the scientific method.
   - Biology - the unity and diversity of life and the dynamic interactions among all organisms, their role in the biosphere and their relationship to each other and responsible utilization of earth's resources and appropriate preservation of the environment.
   - General Physics - basic understanding of the relationships between matter and energy, concepts of energy such as mechanics, heat, fluids, light, electricity, and magnetism
   - General Chemistry - inorganic chemical structures, organic chemical structure, properties, and reactions.

1. Course number and name

44 324 Air Pollution Control

2. Credits and contact hours

3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)

3. Instructor's or course coordinator's name

Dr. Kasem Elfadli

4. Text book, title, author, and year

- J.Colls. Air Pollution: An Introduction. Publisher: Routledge mot E F & N Spon. Year: 1998. ISBN: 0419206507. Pages: 390. Required
- M.Katz. Methods of Air Sampling and Analysis. Edition: 2nd. Publisher: APHA. Year: 1977. ISBN: 0875530796. Required
- B.Himmelsbach. Toxic Materials in the Atmosphere: Sampling and Analysis. Publisher: Amer. Society for Testing. Year: 1983. ISBN: 9993743704. Not Required

5. Specific course information

a) **Brief Description: This** course explores the nature of critical local, regional, continental and global problems associated with air pollution and covers the historical evolution of such problems. It examines the complex regulatory and institutional framework controlling air quality management and explains current air quality management concepts and processes. Specific topics studied in the course include the history of air pollution, identification of atmospheric pollutants and their sources, effects of air pollution, emission and ambient air quality sampling and analysis, monitoring and surveillance networks, transport and dispersion of air pollutants, air pollution modelling and climatology, air quality criteria and standards, elements of regulatory control, and engineering control concepts, devices and systems.

b) **Prerequisites:** None

c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.

6. Specific goals for the course

- Utilize math processes to solve problems.
- Apply scientific terminology.
- Use various communication strategies to share meaning orally.
- Demonstrate knowledge and application of formulas.
- Demonstrate knowledge and application of measurement.
- Apply scientific concepts and methods.

7. Brief list of topics to be covered

- Utilize math processes to solve problems.
- Apply scientific terminology.
- Use various communication strategies to share meaning orally.
- Demonstrate knowledge and application of formulas.
- Demonstrate knowledge and application of measurement.
- Apply scientific concepts and methods.

1. **Course number and name**
   44 401 Health, Safety and Environmental Law
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Soud Alshammari
4. **Text book, title, author, and year**
   - N.K. Kubasek & G. Silverman. *Environmental Law*. Required.
   - N.J. Vig & M.E. Kraft. *Environmental Policy in the 1990's: Reforms or Reactions*. Publisher: Congressional Quarterly. Year: 1997. Required.
   - G. Porter & J. Brown. *Global Environmental Politics*. Publisher: Westview Press. Year: 1997. Not Required.
   - J.V. Switzer & G. Bryner. *Environmental Politics: Domestic and Global Dimentions*. Year: 1998. Not Required.
   - S.P. Hays. *Beauty, Health and Permanence: Environmental Politics in the United States*. Year: 1987. Not Required.
5. **Specific course information**
   a. **Brief Description:** The course introduces a global and local attempt to regulate the environment. The central issues are social movements, international environmental regimes, major environmental regulations, and tools that help you find the law, interpret it and use it.
   b. **Prerequisites:** None
   c. **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate knowledge of global and local attempts to regulate the environment.
   - Analyze local and international legal systems.
   - Apply environmental regulations tools to find the law, interpret it and use it.
   - Demonstrate knowledge of central issues in environmental politics.
   - Demonstrate an understanding of social movements, international environmental regimes, and environmental politics.
   - Demonstrate knowledge of major environmental laws and regulations.
7. **Brief list of topics to be covered**
   - Apply listening skills to various communication situations.
   - Use various communication strategies to share meaning orally.
   - Apply social science concepts and principles to area of study, world of work and personal life.
   - Recognize appropriate sources for current information.
   - Summarize the historical changes of society from hunter-gatherer to post-industrial.
   - Analyze the current structure, processes and trends utilized in resolving conflicts that arise from the overlap of varying group/individual rights and responsibilities.
   - Understand governmental participation at the grassroots level.

1. **Course number and name**
   44 414 - Water Quality Management
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Soud AlShammari
4. **Text book, title, author, and year**
   - R.Helmer. *Water Pollution Control: A Guide to Use of Water Quality Management Principles*. Edition: 1st. Publisher: Routledge mot E F & N Spon. Year: 1998. ISBN: 0419229108. Pages: 528Required
   - J.Perry & E.Vanderklein. *Water Quality: Management of a Natural Resource*. Publisher: Blackwell Science, Inc.. Year: 1996. ISBN: 0865424691. Pages: 450. Not Required
   - R.Hann. *Fundamental Aspects of Water Quality Management*. Publisher: Technomic Pub. Co. Year: 1972. ISBN: 0877621039. Pages: 158. Required
5. **Specific course information**
   a) **Brief Description:** Throughout history, the planning and management of water resources have remained among the chief concerns of society. For example, water shortages in parts of the world over the next 25 years will pose the single greatest threat to food production and human health. This course examines the basic physical and chemical aspects of the applied interdisciplinary science of hydrology and offers a broad perspective on the underlying hydrologic processes that directly influence sound water planning and management decisions. The organization of this course around the unifying concepts of the hydrologic cycle and the watershed allows the application of hydrologic theory to local problems of water quantity and quality. Laboratory and field work provide opportunities to measure stream and ground-water flow, construct physical and computer flow models, sample for and analyze water quality, conduct hydrologic site investigations, and design simple engineering solutions for hydrologic hazards such as floods and droughts.
   b) **Prerequisites:** 44 221 Introduction to Environmental Engineering I
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate understanding of fundamental principles of water quality management.
   - Correlate principles of management to elements of management: laws and regulations, sources identification and assessment, pollution control objectives, water quality criteria and pollution control standards.
   - Demonstrate knowledge and skills of environmental monitoring and environmental data analysis.
   - Discuss legal and economic aspects of water quality management.
   - Demonstrate knowledge of emerging methods of water quality management: water quality management information systems.
7. **Brief list of topics to be covered**
   - Monitor the status of the environment.
   - Demonstrate understanding of national environmental and health regulations and legal issues.

1. **Course number and name**
   44 418 - Risk Analysis and Management
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Bader AlKhalaf
4. **Text book, title, author, and year**
   - A. Yassi, et. al. *Basic Environmental Health*. Publisher: Oxford University Press. Year: 2001. ISBN: 019513558X. Required
   - R. Carson. *Silint Spring*. Year: 1962. Required
   - Moeller. *Environmnetal Health*. Publisher: Harvard University Press. Year: 1997. ISBN: 0679258592. Not Required
5. **Specific course information**
   a) **Brief Description:** This course will give students an overview of human health risk assessment, particularly in environmental, occupational, and community settings. Students will learn about the traditional and stakeholder-centered risk assessment process, including hazard identification, exposure assessment, risk assessment, characterization, and communication. Case studies will be emphasized to provide a real-world grounding for students. Special emphasis is on the complexity of making decisions about threats to human health and the environment when people's perceptions of risks and decision-making differ from expert views. Recognizing the limitations of individuals in processing information, the course explores the role of techniques such as decision analysis, cost-benefit analysis, risk assessment and risk perception in structuring risk management decisions. The policy tools such as risk communications, incentive systems, third-party inspection, insurance and regulation are also explored.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate knowledge of hazard and exposure assessment.
   - Demonstrate knowledge of risk assessment.
   - Apply epidemiological methods to risk assessment.
   - Demonstrate knowledge of risk communication and management.
7. **Brief list of topics to be covered**
   - Use various communication strategies to share meaning orally.
   - Apply scientific concepts and terminology.
   - Develop familiarity with the scientific method.
   - Interpret basic statistical data.
   - Applied Communication.
   - Introduction to Computer Literacy.
   - General Anatomy and Physiology.
   - Biochemistry.

1. Course number and name

44 424 Principles of Environmental Economics

2. Credits and contact hours

3 Credits and 3 Contact Hours (Lectures: 3 hrs)

3. Instructor's or course coordinator's name

Dr. Mahdi Gholoum

4. Text book, title, author, and year

- C.Kolstad. Environmental Economics. Publisher: Oxford University Press. Year: 1999. ISBN: 0195119541. Pages: 416. Required
- Hodge. Environmental Economics. Not Required

5. Specific course information

a) **Brief Description:** This course focuses on the relationship between the economy and the environment. It examines the causes of environmental problems and potential policies that can be used to address them. The role of externalities, property rights and public goods is considered. The advantages and disadvantages of different regulatory responses are discussed. These include direct regulation and the more recent innovations such as incentive-based measures: emission taxes and tradable emission permits. The course examines methods used to value the costs and benefits of achieving a given level of environmental quality. Class debates focus on important and controversial environmental policy issues. Tools of environmental economics, its policies, and global and local environmental issues are also addressed.

b) **Prerequisites:** 25 101 Principles of Economics

c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.

6. Specific goals for the course

- Demonstrate an understanding of economic theories and applications.
- Apply microeconomics concepts to environmental management practice.
- Analyze economic uncertainties.
- Demonstrate an understanding of the economics of environmental justice.

7. Brief list of topics to be covered

- Read and understand written passages.
- Apply scientific concepts and terminology.
- Use a scientific calculator to perform mathematical calculations.
- Interpret basic statistical data.
- Ask questions for clarification.
- Use and interpret common mathematical symbols and concepts.
- Microeconomics.

1. **Course number and name**
   44 426 - Waste Management
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Mishaal AlMashaan
4. **Text book, title, author, and year**
   - M.Davis & D.Cornwell. *Introduction to Environmnetal Engineering*. Edition: 3d. Publisher: McGraw-Hill. Year: 1999. ISBN: 007238777. Pages: 919. Required
5. **Specific course information**
   a) **Brief Description:** The course gives an introduction to the management of solid wastes. Collection, separation, thermal and biological treatment and construction, operation and monitoring of sanitary landfills are in focus. The course concerns alternative strategies for waste management and recycling of different types of solid waste. These methods include incineration, composting and anaerobic digestion. Environmental assessment of the different waste management options with respect to energy and resource consumption and environmental pollution is also included in the course. Basic engineering design, planning, and analysis problems associated with the storage, collection, processing, and disposal of solid wastes are also included.
   b) **Prerequisites**: None
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Scientific, Mathematical & Technological.
   - Critical Thinking and Problem Solving.
   - Communicate effectively.
   - Demonstrate essential mathematical skills.
   - Work cooperatively in a team environment.
   - Demonstrate civic, global, environmental and cultural responsibility.
7. **Brief list of topics to be covered**
   - Demonstrate understanding of principles of waste management.
   - Monitor the disposal sites.
   - Sample waste.
   - Analyze samples.
   - Maintain data QC/QA standards.
   - Specify treatment system and disposal.
   - Specify collection system.
   - Practice waste management rules and regulations.
   - Identify waste type.
   - Determine optimum treatment.
   - Demonstrate understanding of the economics of the treatment system.
   - Communicate hazard information.

1. **Course number and name**
   44 428 - Crisis Management and Communication
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Kasem El-Fadli
4. **Text book, title, author, and year**
   - Coombs, W. T., & Holladay, S. J. (2012). *The Handbook of Crisis Communication*. John Wiley & Sons.
5. **Specific course information**
   a) **Brief Description**: This course will explore the challenges faced by public sector decision-makers faced with the management of crises. Using literature in the field, domestic and international case studies, as well as the perspectives of those who have had to manage crises. The course will explore the issues of risk assessment and crisis avoidance, crisis team management, and post-crisis recovery from political, managerial, and psychological perspectives.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Offers students a better understanding of how to manage communications in various crisis situations.
   - Identify audiences, frame debates, develop messages and implement strategies.
   - Students learn from crisis communications to anticipate and plan for crisis before it happens – and to manage it in such a way that it minimizes the reputational damage and possibly enhances it.
   - Identify Common Basic Elements of Crisis Management Plans.
7. **Brief list of topics to be covered**
   - Parameters for Crisis Communication
   - Organizational Networks in Disaster Response
   - New Media for Crisis Communication
   - Use of Communication Technology in Crises
   - Global Crisis Communication

1. Course number and name

44 430 - Environmental Impact Assessment

2. Credits and contact hours

3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)

3. Instructor's or course coordinator's name

Dr. Ali Khuraibet

4. Text book, title, author, and year

− L.Canter. Environmental Impact Assessment. Edition: 2nd. Publisher: McGraw-Hill, Inc.. Year: 1996. ISBN: 0070097674. Pages: 660. Required

− C.Barrow. Environmental Management: Principles and Practice. Publisher: Routledge. Year: 1999. Not Required

− R.Harding. Environmental Decision making: The Role of Scientists, Engineers and Public. Year: 1998. Not Required

5. Specific course information

a) **Brief Description:** This course is intended to provide the student with a fundamental understanding of the environmental impact analysis process and methodologies, National Environmental Protection Act (NEPA) and related regulations, various environmental documents prepared in response to NEPA requirements; international perspectives; and contemporary issues related to environmental assessment. Environmental Impact Statement spans the environmental review process and environmental impact statement preparation to integrated assessment and adaptive management. The problem-based approach will incorporate the dual facets of environmental impact assessment found in the real world: impact assessment and decision making.

b) **Prerequisites:** None

c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.

6. Specific goals for the course

- Demonstrate an applied understanding of the principles and practice of EIA.
- Examine the rationale and methodology of EIA in the national/international context.
- Examine critical assumptions inherent in impact assessment.
- Identify the range of impact assessment fields and approaches.
- Outline the legal framework for EIA.

7. Brief list of topics to be covered

- Read and understand written passages.
- Apply scientific concepts and terminology.
- Ask questions for clarification.
- Identify the value of working cooperatively with others.
- Formulate alternative solutions to a problem.
- Communicate effectively through writing and speaking.
- Recognize appropriate sources for current information.

1. **Course number and name**
   44 431 - Land Use Geography
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Mahdi Gholoum
4. **Text book, title, author, and year**
   - Berke P, Godschalk D, Kaiser EJ, Rodriguez E (2006) Urban land use planning, 5th edition. University of Illinois Press, Urbana.
5. **Specific course information**
   a) **Brief Description**: This course is intended to introduce students to principles of landscape ecology, resource conservation, and environmental impact analysis as incorporated into land use decisions and public policy with an emphasis on practical application and the site and regional scales.
   b) **Prerequisites:** 44 312 Remote Sensing and GIS
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Urban Land Use Planning deftly balances an authoritative.
   - up-to-date discussion of current practices with a vision of what land use planning should become.
   - explores the societal context of land use planning and proposes a model for understanding and reconciling the divergent priorities among competing stakeholders.
7. **Brief list of topics to be covered**
   - Framing the Land Use Planning Process, The Land Use Planning Arena, Values, Planning, and Sustainable Communities.
   - Planning Support Systems Planning Support System Technologies.
   - Environmental Systems Environmental Inventory and Classification.
   - Land Use Systems Forces of Land Use Change.

1. **Course number and name**
   44 435 - Research Methods
2. **Credits and contact hours**
   1 Credits and 2 Contact Hours (Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Abdullah Abdulhadi
4. **Text book, title, author, and year**
   - A.R. Hoshmand. *Statistical Methods for Environmental and Agricultural Science*. Edition: 2nd Ed. Required
   - S.B. Green (ed). *Using SPSS for Windows*. Required
5. **Specific course information**
   a) **Brief Description**: The course uses reading, case studies, and conceptual and mathematical modeling to develop an understanding of experimental design, data collection and analysis, and conceptual and basic mathematical models used in environmental research.
   b) **Prerequisites:** 24 127 Biostatistics I
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Apply the scientific method to environmental research design.
   - Assess environmental data.
   - Use statistical software.
   - Manipulate numerical data.
   - Conduct non-parametric data analysis.
   - Explain statistical output.
   - Analyze statistical parameters.
   - Discriminate between statistics and parameters.
   - Analyze limits of statistics.
   - Create a conceptual model.
   - Construct a mathematical model.
7. **Brief list of topics to be covered**
   - Use descriptive and univariate statistics.
   - Develop and analyze environmental databases.
   - Identify scales of measurements.
   - Construct a basic conceptual and mathematical model.
   - Use word processing software for the writing process.
   - Conduct oral presentation.
   - Apply scientific concepts and terminology.
   - Create technical reports with the appropriate layout.

1. **Course number and name**
   44 443 - Advanced Topics in Applied Environment
2. **Credits and contact hours**
   2 Credits and 3 Contact Hours (Lectures: 1 hr and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Kasem El-Fadli
4. **Text book, title, author, and year**
   - Newman, E. I. (2008). *Applied Ecology and Environmental Management*. John Wiley & Sons.
5. **Specific course information**
   a) **Brief Description:** The course focuses on the new developments in major topics in environmental and resource management that have traditionally been dispersed among several different books. *Applied Environment* starts with an analysis of our planet's basic natural resources - energy, water and soil; it moves on to the management of biological resources - fish, grazing lands and forests, and then to pest control and pollution. The course will include the full array of arising environmental issues in developing countries, mitigation and management strategies, the complex interplay between science, law, policy, and ethics.
   b) **Prerequisites:** Completion of 40 credits
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Demonstrate the full array of arising environmental issues in developing countries, mitigation and management strategies, the complex interplay between science, law, policy, and ethics.
   - Role and responsibilities of Environmental Protection agencies
   - New developments in area of environmental pollution control
   - Kuwait environmental protection system
7. **Brief list of topics to be covered**
   - Energy, Carbon Balance and Global Climate Change
   - Water, Soil and Pollution
   - Management of forests and Grazing Lands
   - Conservation and Management of Wild Species.
   - Restoration of Communities

1. **Course number and name**

   44 447 - Applied Environment Internship

2. **Credits and contact hours**

   4 Credits and 30 Contact Hours (Practical 30)

3. **Instructor's or course coordinator's name**

4. **Text book, title, author, and year**

5. **Specific course information**
   a) **Brief Description:** This course allows students to experience firsthand environmental challenges in government, industry, and scientific research institutions.
   b) **Prerequisites:** Completion of 90 Credits
   c) **Required, Elective, or Selected Elective:** Specialized Compulsory Course.
6. **Specific goals for the course**
   - Manage all aspects of environmental field studies.
   - Prepare field sites for research.
   - Prepare equipment and materials for environmental sampling.
   - Manage data collection and analysis needs.
   - Identify environmental sampling instruments and their uses.
7. **Brief list of topics to be covered**

1. **Course number and name**
   44 106 - Environmental Geology
2. **Credits and contact hours**
   2 Credits and 2 Contact Hours (Lectures: 2hrs)
3. **Instructor's or course coordinator's name**
   Dr. Nabeel AlKhulaifi
4. **Text book, title, author, and year**
   - Montgomery, C. W. (2013). *Environmental Geology*. McGraw-Hill Education
5. **Specific course information**
   a. Environmental Geology is a general education course that investigates the relationship between society and the geologic environment. The three areas of study will be: 1) geologic hazards such as floods, landslides, volcanoes and earthquakes; 2) geologic resources such as metals, stone, fossil fuels, and water; and, 3) environmental challenges such as waste disposal and ground water contamination.
   b. **Prerequisites:** None
   c. **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Study these topics from a global perspective, paying particular attention to their importance in Kuwait and Arabian Peninsula.
   - Complete the course, you should be able to use what you have learned to make informed decisions related to personal safety, real estate purchases, selecting insurance coverage and intelligently voting on important issues related to earth and environment.
7. **Brief list of topics to be covered**
   - Coastal Zones and Processes
   - Groundwater and Water Resources
   - Mineral and Rock Resources
   - Ice and Glaciers, Wind and Deserts

1. **Course number and name**
   44 123 - Public and Preventive Health
2. **Credits and contact hours**
   2 Credits and 2 Contact Hours (Lectures: 2hrs)
3. **Instructor's or course coordinator's name**
   Dr. Nabeel AlKhulaifi
4. **Text book, title, author, and year**
   - J. Davies. *Community Health, Preventive Medicine and Social Services*. Edition: 5th. Publisher: Bailliere Tindall. Year: 1983. ISBN: 0702009644. Pages: 471. Required
   - M.Mulvihill, et. al. *Human Diseases: A Systematic Approach*. Edition: 5th. Publisher: Prentice Hall. Year: 2001. ISBN: 0838539300. Pages: 496. Required
   - CDC. *21st Century Complete Guide to Genetics and Preventive Medicine: CDC Programs on Chronic Disease Pre*. Publisher: Progressive Management. Year: 2002. ISBN: 159248042X. Pages: 32130. Not Required
5. **Specific course information**
   a. **Brief Description**: This course introduces concepts of demography, fundamental aspects of public health, environmental impacts on human health and information on communicable diseases and disease prevention.
   b. **Prerequisites:** None
   c. **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Demonstrate basic knowledge of demography.
   - Demonstrate knowledge of the concepts of public health.
   - Demonstrate understanding of the impact of the environment on health.
   - Demonstrate understanding of fundamental principles of communicable diseases.
   - Apply public health methods to disease prevention.
7. **Brief list of topics to be covered**
   - Apply scientific concepts and terminology.
   - Use the writing process to prepare and present written documents.
   - Apply social science concepts and principles to area of study, world of work and personal life.
   - Use research effectively and correctly to create oral and written presentations.
   - Recognize the role of science in day-to-day personal decisions.

1. **Course number and name**
   44 202 - Environmental Ethics
2. **Credits and contact hours**
   2 Credits and 2Contact Hours (Lectures: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Kasem Elfadli
4. **Text book, title, author, and year**
   - Benson, J. (2013). Environmental Ethics: An Introduction with Readings. United Kingdom: Taylor & Francis.
5. **Specific course information**
   a) **Brief Description:** Presupposing no prior knowledge of philosophy, this course introduces the fundamentals of environmental ethics by asking whether a concern with human well-being an adequate basis for environmental ethics is. The basic concepts discussed in this course are included (but not restricted to): Land Ethics, value pluralism, environmental holism, deep ecology, rethinking the good life as well as wildlife conservation, poverty as an environmental problem, the ecology and property rights, cost-benefit analysis and environmental policy, environmental activism.
   b) **Prerequisites:** 44 111 Environmental Science
   c) **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Identify the Environmental goods and human well-being health
   - Acknowledge the Principals of The Cultural Approach to Conservation Biology
   - Being a part of nature Readings
7. **Brief list of topics to be covered**
   - Environmental goods and the problem of cooperation
   - Environmental virtues
   - Relating to nature
   - Environmental Philosophy and the Critique of Rationalism

1. **Course number and name**
   44 203 - Environmental Health
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Kasem Elfadli
4. **Text book, title, author, and year**
   - ENVIRONMENTAL HEALTH: FROM GLOBAL TO LOCAL, 3RD, 2016, Howard Frumkin (Editor), ISBN: 978-1-118-98476-5
5. **Specific course information**
   a) **Brief Description:**
      i. This course explores the relationship of people to their environment, how it affects their physical well-being and what they can do to influence the quality of the environment and to enhance the protection of their health.
      ii. An application of principles and procedures needed to understand and control the natural and human environments, especially as they relate to environmental pollution and health effects encountered in our daily activities.
      iii. Emphasis is on general ecological principles, environmental degradation, and environmental protection as well as environmental factors involved in transmission of communicable diseases and hazards due to exposure to chemical and physical materials in our environment.
   b) **Prerequisites:** None
   c) **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Identify the principal environmental exposures that threaten or promote human health
   - Describe the sources of these exposures and their pathway to humans
   - Describe how "upstream" processes (urbanization, housing, transportation, energy use, agriculture, industrial and work organization) may either threaten or promote health
   - Describe what kinds of evidence are used to assess the health impacts of these exposures, including toxicology, epidemiology, and health impact assessment
   - Describe the known and suspected health consequences of these exposures
   - Describe the major prevention and health promotion approaches used by environmental public health practitioners
7. **Brief list of topics to be covered**
   - Ecology and Ecosystems as Foundational for Health
   - Sustainability and Health
   - Environmental and Occupational Epidemiology
   - Geospatial Data for Environmental Health
   - Genes, Genomics, and Environmental Health
   - Exposure Science, Industrial Hygiene, and Exposure Assessment

1. **Course number and name**
   44 209 - Principles of Diving
2. **Credits and contact hours**
   2 Credits and 3 Contact Hours (Lectures: 1 hr and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Ali Khuraibit
4. **Text book, title, author, and year**
   - Marine Life of the North Atlantic, A. Martinez, DownEast Books, 1994
5. **Specific course information**
   a. **Brief Description:** This course introduces technical aspects of scuba diving as well as basic theory of what you should and should not do during diving.
   b. **Prerequisites:** None
   c. **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - This course will provide participants with the necessary knowledge and skills to conduct themselves with competence while using self-contained underwater breathing apparatus (SCUBA).
7. **Brief list of topics to be covered**
   - Training will be conducted under the minimum standards of both the American Academy of Underwater Sciences (AAUS) and applicable recreational training agencies.
   - Topics included: diving equipment, diving environment, physics of diving, diving physiology, diving techniques, navigation and diver rescue

1. **Course number and name**
   44 308 - Introduction to Radiation Protection and Safety Standards
2. **Credits and contact hours**
   3 Credits and 4 Contact Hours (Lectures: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Kasem Elfadli
4. **Text book, title, author, and year**
   - Harbison, A. M. a. S. A. (2013). *An introduction to radiation protection*. Springer.
   - Claus Grupen, "Introduction to Radiation Protection: Practical Knowledge for Handling Radioactive Sources", Springer, ISBN 978-3-642-02586-0, 415 pages. 2010.
5. **Specific course information**
   a) **Brief Description:**
      i. Introductory concepts including standard units and basic nuclear physics to the more specific techniques for selecting instrumentation and practical safety measures.
      ii. The course presents an accessible account of the sources of radiation and the methods of radiation protection.
      iii. The basics of nuclear physics which are directly related to radiation protection are briefly discussed.
   b) **Prerequisites:** 46 113 General Physics
   c) **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Emphasizes practical aspects of radiation protection and gives detailed solutions to radiation protection problems.
   - Emerged from more than forty years of hands-on experience in the field of radiation protection.
   - Emerged from more than forty years of hands-on experience in the field of radiation protection.
   - Combines the basic physics very well with the applicational aspects in medicine.
7. **Brief list of topics to be covered**
   - The units of radiation protection
   - The measurement techniques
   - Biological effects of radiation
   - Eenvironmental radiation
   - Applications of radiation.

1. **Course number and name**
   ENV 310 Principles of Epidemiology
2. **Credits and contact hours**
   3 Credits and 60 Contact Hours (Classroom Presentation 30, On-Campus Lab 30)
3. **Instructor's or course coordinator's name**
   Dr. Bader AlKhalaf
4. **Text book, title, author, and year**
   - Beaglehole R., Bonita R., Kjellstrom T. *Basic Epidemiology*. Publisher: WHO, Geneva. Year: 2002. ISBN: 9241544465. Pages: 174. Price: 17.50KD. Required.
   - B. MacMahon & D.Trichopoulos. *Epidemiology, Principles, Methods*. Edition: 2nd. Publisher: Little, Brwon and Company. Year: 1996. ISBN: 0316542229. Pages: 347. Required. Comments: Haigh & Hochland Medical Bookshop.
   - L. Gordis. *Epidemiology*. Edition: 2nd. Publisher: W.B. Saunders Company. Year: 2000. ISBN: 072168338X. Pages: 308. Not Required.
5. **Specific course information**
   a) **Brief Description:** Course introduces the concepts of epidemiology, measurements of health and diseases, types of epidemiological studies, causation and environmental epidemiology.
   b) **Prerequisites:** 27 127 Biostatics I
   c) **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Demonstrate understanding of basic epidemiological concepts and principles.
   - Demonstrate understanding of epidemiological methods.
   - Demonstrate understanding of and review different kinds of epidemiological studies.
   - Demonstrate understanding of the causation of disease and environmental epidemiology principles.
7. **Brief list of topics to be covered**
   - Demonstrate understanding of basic epidemiological concepts.
   - Apply epidemiological methods.
   - Conduct a critical review of epidemiological study.

1. **Course number and name**
   44 408 - Natural Radioactive Elements
2. **Credits and contact hours**
   3 Credits and 3 Contact Hours (Lectures: 3 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Kasem Elfadli
4. **Text book, title, author, and year**
   - Radiochemistry and Nuclear Chemistry, 4th Edition by Gregory Choppin, Jan-Olov Liljenzin , JanRydberg, Christian Ekberg; Academic Press; ISBN-13: 978-0124058972
5. **Specific course information**
   a) **Brief Description:** Define radioactive material existing in nature and it's environmental effect from oil sectors, operations; production, refinery, and petrochemical industrials. Basic information about radiation and its measurements, sampling, surveying, besides the instruments used for this purpose, personal protective suites, radioactive waste handling from petrochemical and other industrial processes based on relevant international regulations.
   b) **Prerequisites:** 44 308 Introduction to Radiation Protection and Safety Standards
   c) **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Predict the stability of isotopes and describe their likely decay modes.
   - Quantify mass-energy conversions that accompany nuclear reactions.
   - Apply appropriate approximations to specific types of successive radioactive decay.
   - Understand the similarities and differences between different types of radiation.
   - Understand and communicate the risks and benefits of radiation.
7. **Brief list of topics to be covered**
   - The phenomenon of radioactivity
   - The origin of radioactivity
   - Atmospheric Radioactivity
   - Radioactivity in agriculture
   - Radioactivity in building materials
   - Radioactivity and natural resources
   - Radioactivity and renewable energy
   - Radioactivity and nuclear energy

1. **Course number and name**
   44 421 - Industrial Estate Planning and Management
2. **Credits and contact hours**
   3 Credits and 3 Contact Hours (Lecture: 3 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Mahdi Gholoum
4. **Text book, title, author, and year**
   - Weekly Reading Materials like:
     - Industrial Project Management Planning, Design, and Construction. Professor Stefano Tonchia University of Udine Dept. DIEGM Via delleScienzeno.20833100Udine
       Italy tonchia@uniud.it www.diegm.uniud.it/tonchia
       ISBN978-3-540-77542-3
5. **Specific course information**
   a) **Brief Description:** Today, fulfilling contract goals while keeping the customer satisfied and staying within the company's budgetary requirements requires more and more efficient project management. As it has been ascertained that design success depends on the ability to know how to monitor all management activities correctly and effectively, a successful, efficient collaboration.
   b) **Prerequisites:** 44 201 Sustainable Development
   c) **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Company that must be ready and aware of market trends to implement its products and adapt them to the needs of increasingly demanding customers.
   - Important that the project management team has an overall vision of the process up to on-site erection, creating the necessary instruments for in-line monitoring to take the necessary measures for the success of the project.
7. **Brief list of topics to be covered**
   - Product and Service Design.
   - Strategy and Quality Management.
   - Project Organization and Resource Management.
   - Project Risk Management

1. **Course number and name**
   44 427 - Principles of HSE Audit and Inspection
2. **Credits and contact hours**
   3 Credits and 60 Contact Hours (Lecture: 2 hrs and Lab: 2 hrs)
3. **Instructor's or course coordinator's name**
   Dr. Sabah AlTurkait
4. **Text book, title, author, and year**
   - IMPEL NETWORK. *IMPEL Reference Book for Environmental Inspection*. Publisher: European Union Network. Year: 1999. Required
5. **Specific course information**
   a) **Brief Description:** This course is designed to provide students with basic information on the concepts and principles of Health, Safety and Environmental Inspection, which can be used by the regulatory and HSE Departments within governmental and private organizations and ensure all activities are according to accepted standards, laws and regulations. Topics included are: the definition of the environmental inspection and its objectives, inspection activities, and writing inspection reports.
   b) **Prerequisites:** 44 401 Health, Safety and Environmental Law
   c) **Required, Elective, or Selected Elective:** Specialized Elective Course.
6. **Specific goals for the course**
   - Demonstrate understanding of HSE inspection concepts.
   - Demonstrate understanding of the role of HSE inspector during an inspection visit.
   - Demonstrate competency in HSE inspection preparation.
   - Demonstrate competency in carrying out HSE inspection procedures.
   - Write HSE inspection report.
7. **Brief list of topics to be covered**
   - Apply scientific concepts and terminology.
   - Read and understand written passages.
   - Create documents following the appropriate layout and design.
   - Technical Report Writing.
   - Computer literacy (Internet).
   - Demonstrate maturity, responsibility, dependability, and respect for others.