

Syllabus: BIO 309: Your Body, Your Health, Your Choices

Course number: BIO 309

Number of credits: 3

Course instructor: Josef Kren, e-mail: josef.kren@doane.edu

Description:

BIO 309 is an interdisciplinary course encompassing biology, chemistry, biotechnology, medicine and natural sciences for both science and non-science majors. The course examines the various environmental attacks his/her body is facing on daily basis.. Students will use critical thinking, problem solving, and the scientific method to examine selected topics as they relate to everyday life. After course completion everyone should be able to make more educational choices regarding his/her life style.

Course Objectives:

- Introduce the student to current issues in biomedical sciences, scientific research and its applications.
- Develop a basic knowledge of the major information resources for scientific disciplines and the research skills to use them.
- Develop problem solving and communication skills essential to communication in science.
- Be informed of current issues and emerging challenges in the field.
- Understand issues related to the importance of science education and the public understanding of science. Know how to “keep up” with biomedical sciences.
- Understand the consequences of biomedical applications to the lives of humans.
- Understand medical science in personal and social perspectives.

After completing the course you should be able to describe and discuss health issues as related to daily lives and the choices we face.

I will present the ‘scientific background’ for each of the covered topics and will expect all of us (the community of active learners) to get involved in discussing the topics. I expect and greatly value **critical thinking and discussion**. Various movies dealing with health and health care issues will be shown and discussed.

Course policies

Textbook:

There is no textbook for this course. Various journal articles will be assigned and provided during the course. You will receive power point presentation for each session.

Home Assignments:

Most of home assignments will include scientific articles search by using Google Scholar, Academic Search, EBSCO, etc., their critical evaluation and use for preparation of midterm and final papers.

Attendance:

Students are expected to attend every lecture/field trip during the course. Each class meeting is highly interactive and the learning is impossible to recreate in a make-up assignment. But we understand that, sometimes, life interrupts our plans. In the case of an illness, work requirement, or family emergency, you must contact the teacher or a designated college official to explain your absence. You will be required to complete an additional assignment due the week following the missed class. In the event that you are forced to miss two or more class meetings, special arrangements must be made with the teacher to determine if the requirements for the course can be met.

Grading:

Your grade in this course will be based on:

- A/ research papers dealing with topics we will discuss in class.
- B/ discussion in class. I expect everyone to get involved in discussion and present his/her political, religious, social, and economics view of the covered topics.
- Overall performance: 100-95 % = A+
94-90 % = A
89-85 % = B+
84-80 % = B
79-75 % = C+
74-70 % = C
69-60 % = D
< 59 % = F

Doane College Academic Integrity Policy:

The Doane College Academic Integrity Policy will be adhered to in this class. All projects and tests will represent your own work. Any use of others' ideas and words without proper citation of sources is plagiarism and will result in penalties to be determined by the instructor and/or the dean of undergraduate studies.

Schedule of sessions:

Session 1

Topic 1: The fatal consequences of diabetes mellitus.

Diabetes Mellitus cases, in the U.S., almost doubled over the last 10 years, including cases of children. We are facing an imminent diabetes epidemic costing billions of dollars. What can we do to prevent it?

Session 2

Topic 2: Sexually transmitted diseases and its life-long consequences.

Sexually transmitted diseases did not disappear with the invention of antibiotics. They are still around, often having fatal consequences. They are easy to get and easy to spread.

Session 3

Topic 3: What about all the supplements and vitamins?

People spend billions of dollars on supplements and vitamins. Do they really do what the advertising fliers tell us? Can I avoid them and still stay healthy?

Session 4

Topic 4: One cigarette does not kill; lung carcinoma does.

This topic will cover causes of cancers, carcinogens in the environment (food, water, pollutants) and how they change normal body cells into carcinogenic cells. What protective means can be utilized to stay cancer free?

MIDTERM PAPER

Session 5

Topic 5: My diet, my body, my health:

Diet is important for the body; however, the composition of the diet (carbohydrates, fatty acids, proteins) has significant effect on development of various diseases.

Session 6

Topic 6: The one miracle pill:

Why do we not have a 'miracle pill' that would cure all of our problems? What about the side effects of medications, overdosing and following consequences on our health? It was the 'miracle antibiotic' that gave us Methicillin resistant *Staphylococcus aureus* (MRSA). Do we overdose children with antipsychotic drugs?

Session 7

Topic 7: Why we get sick?

Why our immune system works so well and then suddenly fail? Can we control the efficiency of our own immune system? What are the most common offenses against the immune system?

Session 8

Topic 8: Medication for free; it's in your drinking water.

Drinking water contains dozens of various prescribed medications. The unsafe practices of medication disposal, both commercial and individual, are affecting all of us.

FINAL PAPER