Understanding science: Food and health

Course Description

What we eat and drink is fundamental to our health. However, when it comes to information about the relationship between food and health, it’s often difficult to know what to believe. Do some foods really cause cancer? Is there any reason to take a vitamin every day? Do green tea and red wine actually help prevent heart disease? Will a gluten-free diet help you lose weight? Are antioxidants and probiotics truly effective? Anyone looking for guidance from newspapers, magazines, and websites will often find conflicting information. Even advice from medical professionals is not always consistent. This course is designed to reveal the source of that confusion and to demonstrate why we should be skeptical of medical claims in nonscientific sources. More importantly, it will help students learn how to evaluate the results of scientific studies, to get accurate information about relationships between food and health that they can use to make informed decisions about their diet.

Instructor

Dr. Ann Throckmorton, Professor of Biology
Office: 311 Hoyt Science Center
Phone: 724-946-7209
E-mail: athrock@westminster.edu
Office hours: Monday 11:30 - 12:30
Wednesday 12:50 – 1:50
Thursday 12:40 - 2:00

Lecture

2:00 – 3:30, Monday/Wednesday 292 Hoyt Science Center

Attendance in lecture is expected but you will not be graded on attendance except indirectly through your grades on exams, quizzes, and assignments. Because your success in this course is strongly dependent on your presence in class you should make an effort to attend all class sessions. If you know ahead of time that you will be absent you should contact me to find out what will be covered in class while you’re gone and to make arrangements for making up exams, quizzes, and assignments. If you miss class it’s your responsibility to contact me and to obtain lecture notes and assignments that were given during your absence.
**Course Outcomes**

Students who complete this course will accomplish the following goals:

1. Becoming familiar with the scientific method and what its capabilities and limitations are.
2. Recognizing well-designed observational and experimental studies and understanding why poorly-designed studies may lead to false or misleading conclusions.
3. Locating, reading, and understanding scientific literature and using it to evaluate multiple lines of evidence and competing claims.
4. Considering how scientific information is presented in magazines, newspapers, web sites, and on social media, and determining whether those media accurately represent the results of scientific research.
5. Understanding that scientific research has shown a connection between many dietary factors and human health.

**Methods of Instruction**

1. **Lectures and discussion**: We will use class time for learning new information, doing in-class exercises, and discussing conclusions of previous classwork. I expect you to attend class, pay attention, and participate actively in discussions by answering questions, asking questions, and making comments.

2. **Reading**: You will not have to buy a textbook. Instead, you will read sections of e-books and articles on the Internet and posted on D2L. You will be given reading assignments several days ahead of time. Assigned readings should be completed before coming to class. Take notes on your reading and keep track of any questions that arise for later clarification in class or during office hours.

3. **In-class exercises**: Individual and group exercises will give you experience in locating, reading, understanding, and reaching conclusions about scientific and nonscientific sources of information. Those exercises will lead to class discussions and may introduce new topics. They may be followed up by assignments or additional in-class exercises.

4. **Exams**: Periodic lecture exams will allow you to assess your progress in learning the information presented in the class and developing important skills. There will be three exams. The final exam (Wednesday, May 8, 11:30 AM-2:00 PM) will be comprehensive. You should expect multiple choice, short answer, and essay questions on the exams; matching, true/false, and fill-in-the-blank questions may occasionally appear.

5. **Research paper**: You will write an in-depth paper in which you will describe how one particular food, beverage, or supplement affects human health. You will choose which dietary component you want to research. You will read the primary scientific literature, summarize the findings, and reach conclusions based on those sources. You will receive more information about the length and format of the paper at a later date. The paper will be due on Friday, May 3rd.
6. **Assignments**: There will be many assignments in this course. In some cases, they will be designed to prepare you for class discussions or to give you more information or a different viewpoint on the material that is covered in the reading. In other cases, the assignments will be used to develop skills or to assess whether particular goals have been achieved. All assignments must be turned in on the day and time that they are due unless you are absent on that day and had a valid excuse. Valid excuses include such things as serious illness or injury and personal and family emergencies. Points will be subtracted from assignments that are turned in late, with the number of points lost being proportional to the time elapsed since the due date.

**Grading**

Grades will be based on exams, assignments, in-class exercises, and a research paper, weighted as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage of Final Grade</th>
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<tbody>
<tr>
<td>Exams</td>
<td>45%</td>
</tr>
<tr>
<td>Assignments</td>
<td>35%</td>
</tr>
<tr>
<td>In-class exercises</td>
<td>10%</td>
</tr>
<tr>
<td>Research paper</td>
<td>10%</td>
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</tbody>
</table>

Your final grade in the course will be based on the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Above 93%</td>
</tr>
<tr>
<td>B+</td>
<td>87% - 90%</td>
</tr>
<tr>
<td>C+</td>
<td>77% - 80%</td>
</tr>
<tr>
<td>D+</td>
<td>67% - 70%</td>
</tr>
<tr>
<td>B</td>
<td>90% - 93%</td>
</tr>
<tr>
<td>C</td>
<td>80% - 83%</td>
</tr>
<tr>
<td>D</td>
<td>70% - 73%</td>
</tr>
<tr>
<td>D-</td>
<td>60% - 63%</td>
</tr>
<tr>
<td>F</td>
<td>below 60%</td>
</tr>
</tbody>
</table>

**Accessibility**

Westminster College is committed to providing services and support for students with physical, psychological, visual, hearing, or learning disabilities as defined by the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Students with diagnosed disabilities who require solutions for environmental or curricular barriers should contact Faith Craig, Director of Disability Resources, located in 414 Thompson-Clark Hall (craigfa@westminster.edu; phone: 724-946-7192). She will review the documentation, determine if you are eligible for services, and then coordinate the accommodations, auxiliary aids, academic support, and/or referrals you require in this class.

If you need any special accommodations in the classroom or for exams, please let me know during the first week of class.
ACADEMIC INTEGRITY

Academic integrity is central to the purpose and pursuit of any academic community. In this class, I expect you to adhere to the principles of academic integrity stated in the Westminster College handbook and to maintain the highest standards of academic honesty and integrity, in keeping with the philosophy and purposes of the College.

“Academic dishonesty is a profound violation of this expected code of behavior. It can take several forms, including, but not limited to, plagiarism, cheating, purposely altering the work of another (without that person’s permission), misrepresentation of attendance in class or at a College event, misrepresentation of work, facts or experimental results, unauthorized use of or intentional intrusion into another’s computer files and/or programs, intentional damage to a computer system, unauthorized use of library materials and privileges, or engaging in any activity which attempts to alter or harm another’s academic standing.”

You must always guard against potential plagiarism. Plagiarism includes extensive quoting, paraphrasing, or copying from any other source (books, articles, websites, other students’ work, or class material), incorrect or inadequate citation of quotes, data, ideas, or images, and directly copying information that has been produced by another student or published by another researcher. Data, graphs, photographs, or ideas taken from another source must be cited correctly. All documents that you turn in electronically will be submitted to Turnitin.com, an on-line plagiarism detection and prevention tool. I encourage you to work together and discuss your assignments with other students and to use information from published texts and the Internet, but all documents that you submit must be your own work. Don’t share electronic files with anyone else – if they plagiarize your work and submit it as their own, both of you will be held responsible.

In accordance with College policy, if you violate the College’s academic integrity policy, a written report will be sent to the Dean of Academic Affairs. In addition, there will be a penalty to your grade, ranging from a 0 on one assignment, exercise, or exam up to a failing grade for the course.

Dr. A. E. Throckmorton
Department of Biology
Westminster College
New Wilmington, PA