NS 1410-001
Science of Nutrition
CRN 31133
Spring 2018
Tuesday/Thursday 12:30 p.m. - 1:50 p.m.
HS 169

The mission of the Nutritional Sciences Program is to prepare individuals who will make a contribution to food and nutrition related professions and to society as a whole through quality education, research, and service.

Instructor: Kembra Albracht-Schulte, MS
Office Hours: Appointment Only: please e-mail me if you need to meet
E-mail: kembra.albracht@ttu.edu
E-mail is the preferred communication. (Please include NS 1410-001 in the subject line.)

COURSE MATERIALS (3 total):

*Recommended:


Your book is an e-text along with a 3-hole punch unbound book. You will buy the book, which comes with an access code for the eText. Your ACCESS CODE is necessary for you to gain digital access to your eText.

- Varsity Book Store - 1305 University Avenue
- Barnes & Noble on Texas Tech Campus - Bookstore

Optional: Once you have purchased your book with the ACCESS CODE go to www.masteringnutrition.pearson.com to access your eTextbook. Click ‘Students’ underneath Register and follow registration prompts. Your ACCESS CODE is necessary for you to gain digital access to your eText.

Make sure to purchase the correct textbook when prompted (The Science of Nutrition 3rd edition – please see image to the above). If you have an iPad you may download the free app Pearson eText. This app allows you to download chapters to your iPad and access the chapters online or offline.

*Required:

Course Packet & Lab Manual: Available at Copy Outlet (Ave. X & Broadway)
1. NS 1410 Course Notes - these are power points from lecture that you will need for class for notes. You must have this packet in order to be successful.
Catalog Description: Study of the nutrients found in foods and utilization of those nutrients by the body. Designed to convey the basic principles of nutritional science. Partially fulfills core Life and Physical Sciences requirement.

Course Purpose: The introduction of nutrients, their content in food, energy metabolism and utilization, and their role throughout the lifecycle and in health and disease, in order for the student to make healthy choices in their diet to prevent the onset of chronic diseases and maintain a healthy lifestyle. Particular attention is focused on obesity, diabetes, cardiovascular disease and cancer, and how certain nutrients play a role in the development of these diseases.

Expectations, Requirements and Evaluation:
It is the student's responsibility to read the chapters described in the class schedule prior to the class period, and be prepared for class discussion.

Class participation: promotes a learning environment, and is therefore encouraged and expected. Participation includes asking questions (for clarification or better understanding), discussing current or controversial issues in nutrition, exploring applications of ideas or concepts, problem solving, and other exchanges of ideas.

Labs:
• Labs meet once a week. If you miss a lab, it MUST be made up during the week you missed.
• For questions regarding labs, see your lab instructor. Instructors vary with the lab sections.
• Excellent performance in the laboratory may raise the lecture average a letter grade and poor performance in the laboratory may drop the lecture average grade a letter grade.
• Laboratory grades will be assigned by your laboratory instructor and will be based on attendance and lab reports in the lab.

Expected Learning Outcomes:
1. Identify the components of a healthy diet
2. Demonstrate knowledge of the various nutrients, their food sources, and functions in the body, deficiencies and toxicities.
3. Distinguish sound nutritional principles from faddism and quackery
4. Describe the principles of digestion, absorption and metabolism of nutrients.
5. Evaluate personal dietary intake for nutritional adequacy. (LAB)
6. Explain the association between nutrition and chronic diseases
7. Identify the components of a healthy diet and discuss techniques utilized in diet planning for maintenance, weight gain and loss.
8. Identify different types of research and advantages and disadvantages of each
9. Discuss parameters to assess body weight and factors contributing to obesity including genetics.
10. Discuss various weight loss treatments
11. Explain the role of nutrition and physical activity in promoting wellness.

Accreditation Council for Education in Nutrition and Dietetics Expected Learning Outcomes & Assessments:

KRD 3.1-Students must be able to use the nutrition care process to make decisions, to identify nutrition-related problems and determine and evaluate nutrition interventions.

Method of Assessment: Case study
Evaluation Criteria:

<table>
<thead>
<tr>
<th>Percent of course grade</th>
<th>Core Curriculum Student Learning Outcome</th>
<th>Student Learning Outcome Specific to this Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Exams/Quiz</td>
<td>80%</td>
<td>3,4,5</td>
</tr>
<tr>
<td>Lab</td>
<td>20%</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>

Attendance Policy:
- No direct grade will be awarded for attendance; however, regular attendance should ensure greater success on exams and assignments.
- **Attendance may be taken randomly**: you must be physically in class from beginning to end to be considered present. Attendance credit may be worth 2 points to be added to exam scores.
- Students are responsible for all assignments and information/announcements covered in the classroom and materials distributed during class sessions whether they are present or not.

Examinations:
- Four (4) regular exams and a **COMPREHENSIVE FINAL** for a total of five (5) exams.
- Students must bring an **ORANGE SCANTRON** form and a # 2 pencil to each exam. A pink scantron will NOT be accepted.
- Test content will include material from the textbook, course notes and class discussions.
- You are expected to know your R number and be able to correctly bubble it in on your scantron.
- If the student is tardy on a day that an exam is given, the student will be allowed the remainder of the class period to take the exam **only** if arriving **before** any other student has completed the exam and exited the classroom.

Make-up exams:
Make up exams **without documentation** will NOT be given under any circumstances.

Students away on University business must bring in a letter from their department **PRIOR to the exam** in order to take the exam missed. Students must contact the instructor **PRIOR to the exam** in the case of illness and bring a valid doctor’s note as soon as possible.

**Exam Rules** - NO cell phones, beverages or food products, or calculators will be allowed during exams. No ball caps or sunglasses are to be worn. Nothing but a scantron and pencil are allowed in the desk area.

**FINAL EXAM**: The lowest regular exam grade may be replaced with the FINAL EXAM grade, **IF** the final exam grade is higher.

- In order to be **exempt** from the comprehensive final you must meet BOTH of the following criteria:
  1. Take all four (4) regular exams
  2. Earn an “A” on all four regular exams – an “A” average does NOT constitute exemption **unless all 4 exams = an “A” grade**.
- Failure to take the final if the above criteria is not met will result in a “0” as one of the grades factored into the final grade.
Grades will be based on the following percentages:

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Weight</th>
<th>Assigned Grade Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Exams (4)</td>
<td>60%</td>
<td>Based on the distribution:</td>
</tr>
<tr>
<td>Comprehensive Final Exam***</td>
<td>15%</td>
<td>A= 89.5-100</td>
</tr>
<tr>
<td>Laboratory</td>
<td>20%</td>
<td>B=79.5-89.4</td>
</tr>
<tr>
<td>Syllabus Quiz</td>
<td>5%</td>
<td>C=69.5-79.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D=59.5-69.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F=less than 59.4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

“All communication regarding a grade dispute MUST be done in person and not by phone or email*

Posting of grades:

- All grades will be posted on www.ttu.blackboard.com
- Sign in with your eRaider user name and password.

After the final grades are posted, grades will not be curved. There is NO extra credit for this class.

Posting of other material: Exam reviews will be posted on www.ttu.blackboard.com

Academic Integrity:

- It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own, any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension. This policy applies to exams, quizzes, and all written assignments.
- **Cheating:** Dishonesty on examinations and quizzes or on written assignments, illegal passion of examinations, the use of unauthorized notes during an examination of quiz, obtaining information during an examination from the examination paper or otherwise from another student, assisting others to cheat, alteration of grade records, illegal entry to or unauthorized presence in an office are instances of cheating.
- **Plagiarism:** Offering the work of another as one’s own, without proper acknowledgement, is plagiarism; therefore any student who fails to give credit for quotations or has essentially identical expression of material taken from books, journals, encyclopedias, magazines, and other reference works, or from the themes, or other writings of a fellow students, is guilty of plagiarism.
- **Questions with grading:** It is the responsibility of the student to retain all graded assignments and return the original assignment with the instructor’s grade and comments before any adjustment will be made in regard to the assignment score, grade, or credit etc. A photo copy is not acceptable.

Disability Services

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.
Student absence for observance of a religious holiday. (TTU Operating Policy 34.19)

1. “Religious holiday means a holiday observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code 11.20.
2. A student who intends to observe a religious holiday should make that intention known to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holiday shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.
3. A student who is excused under Section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily. A student who intends to observe a religious holy day should make that intention known in writing to the instructor PRIOR to the absence.

TTU Resources for Discrimination, Harassment, and Sexual Violence

Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University. Report any incidents to the Office for Student Rights & Resolution, (806)-742-SAFE (7233) or file a report online at titleix.ttu.edu/students. Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of these available resources are: TTU Student Counseling Center, 806-742-3674, https://www.depts.ttu.edu/scc/ (Provides confidential support on campus.) TTU Student Counseling Center 24-hour Helpline, 806-742-5555, (Assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health counselor.) Voice of Hope Lubbock Rape Crisis Center, 806-763-7273, voiceofhopelubbock.org (24-hour hotline that provides support for survivors of sexual violence.) The Risk, Intervention, Safety and Education (RISE) Office, 806-742-2110, rise.ttu.edu (Provides a range of resources and support options focused on prevention education and student wellness.) Texas Tech Police Department, 806-742-3931, http://www.depts.ttu.edu/ttpd/ (To report criminal activity that occurs on or near Texas Tech campus.)

Disruptive Behavior:

Students are expected to assist in maintaining a classroom environment which is conducive to learning; therefore, the following are prohibited in the classroom: the use of cellular phones or beepers, eating or drinking, making offensive remarks, reading newspapers, sleeping or engaging in any other form of distraction. Inappropriate behavior shall result in, minimally, a request to leave the classroom.

Resolving Student Issues.

If you encounter an issue in this course you should follow the following chain of authority:

• First discuss it with the instructor of the course in an attempt to resolve the issue.
• If the issue is not resolved, or is something you do not feel comfortable discussing with the instructor, you should contact the Department Chairperson.
• Under no circumstances should you begin this process with the Chairperson or the Dean’s Office without first consulting the Chairperson.
Financial Issues
Please note that unsuccessful completion of this class or course completion of at least 60% of the semester may result in repayment of all or part of your student financial aid. For further information, please contact Student Financial Aid, 806-742-3681, or finaid.advisor@ttu.edu.

Dropping the class: Consult the University catalog for dates and procedures. All drops are the responsibility of the student

Emergency Procedures
In the unlikely event of an emergency, students and faculty should follow the guidance provided at the website below. There is a possibility that this may include evacuation of the building or seeking shelter within the building.

http://www.depts.ttu.edu/hs/emergency_planning/index.php
http://www.depts.ttu.edu/communications/emergency/

Core Curriculum Objectives and College-Level Competency Statement
The objective of the study of the natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the bases for building and testing theories. The natural sciences investigate the phenomena of the physical world.

Students graduating from Texas Tech University should be able to explain some of the major concepts in the natural sciences and demonstrate understanding of scientific approaches to problem solving, including ethics. Upon successful completion of this course, students will have been exposed to the major concepts of human nutrition and demonstrate their understanding of the scientific approach in gaining knowledge about this subject and how the topic affects human well-being.

Natural Sciences Core Statement: This course satisfies one-half of the Texas Tech University Life and Physical Science Core Curriculum Requirement. To meet this requirement, students will be responsible for information discussed in lecture and lab. Relevant information on human nutrition will be included on all exams and lab reports.

Natural Science Core Curriculum
Coordinating Board Objective 1. Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Lecture: Students are introduced to components of a healthy diet and expands into food sources of carbohydrates, protein and lipids, vitamins and minerals and how all of these nutrients must be in balance in order to maintain a healthy nutritional status. In addition, they also discuss weight maintenance and factors contributing to obesity and how nutrition plays a role in chronic disease. Lab: In lab 2, students are required to complete a 3 day food intake, complete a computer analysis and determine if their diet needs any modifications. In lab 9, students take anthropometric measurements of themselves and assess the risk factors associated between these measurements and chronic disease. Finally, in lab 12 the student must combine lab 2 & 9 results and determine their risk factors of developing chronic diseases that are associated with nutrition. While critical thinking is required throughout this entire class it is mainly assessed in 3 labs.

Methods of Assessment: Lab 2-Nutrient Analysis of Food Intake, Lab 9-Body Composition Analysis and Lab 12-Health Risk Assessment Lab.
Coordinating Board Objective 2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication

Lecture: Students develop oral communication skills through in-class discussions, and interpretations of what is visually presented in videos and images.
Lab: Students are stimulated to develop oral and visual communication skills through peer-associated group interactions completing to weekly lab experiments and written reports.

Methods for Assessment: Class Discussion, Lab Group Interactions and weekly lab reports

Coordinating Board Objective 3. Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Lecture: Relevant nutritional information is presented to the students that can be applied to supplement their analysis on lab reports.
Lab: Students learn to perform numerous calculations and use scientific formulas to be able to make conclusions about their data and answer the questions on their laboratory reports. Students work with data calculating density, pH, enzymatic activity, osmosis and other methods of transport, and degree of saturation of lipids.

Methods for Assessment: Labs 1-12 weekly lab reports

Coordinating Board Objective 4. Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Lecture: class discussion and question are utilized to stimulate discussion and problem solving.
Lab: Students work in the lab in groups of four. Experiments are done either individually at a table of four or as a group where the experiment is only conducted once per group. However, they each must complete their own lab reports. It is encouraged to help each other in lab within your group.

Methods of Assessment: Class Discussion, Lab Group Interactions

Life and Physical Sciences Student LEARNING OUTCOMES

TTU Student Learning Objective 1. Demonstrate knowledge of the scientific method and to contrast it with other ways of understanding the world.

Lecture: Students are exposed to the scientific method process and examples of nutrition misinformation where scientific method was not followed. While this is discussed throughout the class it is mainly assessed in theories of weight loss and fad diets.
Lab: The first laboratory exercises define terms and rationale such as research, the scientific methods, and the hypothesis. Students must complete twelve (12) laboratory experiments including formulating the hypothesis, perform the experiment, record the results and answer questions based on these results and make a conclusion.

Methods of Assessment: Exam 4 (weight maintenance and fad diets questions) and Lab 1-12 weekly lab reports.

TTU Student Learning Objective 2. Demonstrate knowledge of the tools and methods used by scientists to study the natural world.

Lecture: In order to understand tools and methods of inquiry, discussion of current tools, technologies and methods important for scientific discovery are presented in lecture.
Lab: The first lab is devoted to safety and the correct use of some of the tools and equipment commonly used in a science lab. In the first laboratory there are exercises that
demonstrate concepts such as accuracy and validity. The student is exposed to and has to experiment with different tools to complete weekly laboratory assignments and there are instructions how to perform the laboratory experiments correctly.

**Methods for Assessment:** Labs 1-12 Weekly reports

**TTU Student Learning Objective 3. Explain some of the major theories in the Natural Sciences.**

*Lecture:* Major theories in the Natural Sciences as they pertain to human nutrition (e.g. Genetics and chronic disease as it pertains to nutrient intake, homeostasis, metabolism, theories of aging, and obesity theories such as Set Point, Thrifty gene and hunger/satiety hormone regulations such as leptin, ghrelin and peptide YY) are discussed in lecture. The exams will ask specific questions such as which nutrient has a positive or negative effect on a specific disease state, describe set point theory, etc. Also, saturated fat may increase your risk factor of cardiovascular disease, but omega 3 fatty acid has a positive effect on your risk factor of developing cardiovascular disease and these are both influenced by your genetic predisposition of the disease.

**Methods for Assessment:** Exams 1-4

**TTU Student Learning Objective 4. Describe how Natural Sciences research informs societal issues, including ethics.**

*Lecture:* Throughout this course evidence based research is discussed to address specific aspects of nutrition, including ethics. The text book has current topics and the class reviews some example of where nutrition research has been used to justify changes in governmental food policy. One example of this is that nutrition research supported that intake of the vitamin called folic acid in higher amounts in early pregnancy was associated with a decrease in the number of infants born with neural tube defects and now some foods are required to be fortified with folic acid. Also discussed is how research translates to practice and everyday life. Specifically, how it affects recommended nutrient intakes and dietary guidelines. For assessments, specific questions are asked to determine knowledge of how nutrient intake, or lack thereof has affected society and the role of ethics.

*Lab:* A general overview of ethics in research is discussed. In addition, privacy issues are demonstrated in the laboratory.

**Methods of Assessment:** Exam 1-4 and Labs 1-12 weekly reports
<table>
<thead>
<tr>
<th>Jan 18</th>
<th>R</th>
<th>Introduction/ Role of Nutrition in Our Diet</th>
<th>Ch. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 23</td>
<td>T</td>
<td>Designing a Healthful Diet</td>
<td>Ch. 2</td>
</tr>
<tr>
<td>Jan 25</td>
<td>R</td>
<td>The Human Body: Are We Really What We Eat?</td>
<td>Ch. 3</td>
</tr>
<tr>
<td>Jan 30</td>
<td>T</td>
<td>Carbohydrates</td>
<td>Ch. 4</td>
</tr>
<tr>
<td>Feb 1</td>
<td>R</td>
<td>Carbohydrates (cont.)</td>
<td>Ch. 4</td>
</tr>
<tr>
<td>Feb 6</td>
<td>T</td>
<td>EXAM 1 – Chapters 1-4</td>
<td></td>
</tr>
<tr>
<td>Feb 8</td>
<td>R</td>
<td>Lipids</td>
<td>Ch. 5</td>
</tr>
<tr>
<td>Feb 13</td>
<td>T</td>
<td>Proteins</td>
<td>Ch. 6</td>
</tr>
<tr>
<td>Feb 15</td>
<td>R</td>
<td>Proteins (cont.)</td>
<td>Ch. 6</td>
</tr>
<tr>
<td>Feb 20</td>
<td>T</td>
<td>EXAM 2, PT 1 – Chapters 5-6</td>
<td></td>
</tr>
<tr>
<td>Feb 22</td>
<td>R</td>
<td>Metabolism/Alcohol</td>
<td>Ch. 7</td>
</tr>
<tr>
<td>Feb 27</td>
<td>T</td>
<td>Nutrients Involved in Energy Metabolism</td>
<td>Ch. 8</td>
</tr>
<tr>
<td>Mar 1</td>
<td>R</td>
<td>No Class</td>
<td></td>
</tr>
<tr>
<td>Mar 6</td>
<td>T</td>
<td>EXAM 2, PT 2 – Chapters 7-8</td>
<td></td>
</tr>
<tr>
<td>Mar 8</td>
<td>R</td>
<td>Nutrients Involved in Fluid &amp; Electrolyte Balance</td>
<td>Ch. 9</td>
</tr>
<tr>
<td>Mar 13-15 TR</td>
<td>NO CLASS: Spring Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar 20</td>
<td>T</td>
<td>Nutrients Involved in Bone Health</td>
<td>Ch. 11</td>
</tr>
<tr>
<td>Mar 22</td>
<td>R</td>
<td>Nutrients Involved in Antioxidant Function</td>
<td>Ch. 10</td>
</tr>
<tr>
<td>Mar 27</td>
<td>T</td>
<td>EXAM 3, PT 1 – Chapters 9 and 11</td>
<td></td>
</tr>
<tr>
<td>Mar 29</td>
<td>R</td>
<td>Nutrients Involved in Blood Health &amp; Immunity</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>Apr 3</td>
<td>T</td>
<td>Achieving &amp; Maintaining a Healthful Body Weight/Weight Loss Treatments</td>
<td>Ch. 13</td>
</tr>
<tr>
<td>Apr 5</td>
<td>R</td>
<td>Achieving &amp; Maintaining a Healthful Body Weight &amp; Weight Loss Treatments (cont.)</td>
<td>Ch. 13</td>
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<tr>
<td>Apr 10</td>
<td>T</td>
<td>EXAM 3, PT 2 – Chapters 10 and 12</td>
<td></td>
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<tr>
<td>Apr 12</td>
<td>R</td>
<td>Disordered Eating</td>
<td>Ch. 13A</td>
</tr>
<tr>
<td>Apr 17</td>
<td>T</td>
<td>Nutrition and Physical Activity</td>
<td>Ch. 14</td>
</tr>
<tr>
<td>Apr 19</td>
<td>R</td>
<td>No Class</td>
<td></td>
</tr>
<tr>
<td>Apr 24</td>
<td>T</td>
<td>No Class: Instructor at Conference</td>
<td></td>
</tr>
<tr>
<td>Apr 26</td>
<td>R</td>
<td>Dietary Supplements and Functional Foods</td>
<td>(Not in Book)</td>
</tr>
<tr>
<td>May 1</td>
<td>T</td>
<td>EXAM 4 – Ch. 13-14 and Supplements/FF</td>
<td></td>
</tr>
<tr>
<td>May 3</td>
<td>R</td>
<td>Life Cycle: Pregnancy &amp; the First Year of Life</td>
<td>Ch. 17</td>
</tr>
<tr>
<td>May 8</td>
<td>T</td>
<td>Life Cycle: Childhood and Adolescence and Life Cycle: The Later Years</td>
<td>Ch. 18/19</td>
</tr>
<tr>
<td>May 15</td>
<td>T</td>
<td>Comprehensive Final Exam 1:30–4:00 pm</td>
<td>HS 169</td>
</tr>
</tbody>
</table>

**The class schedule, including exam dates and assignments, is subject to change by the instructor in order to more appropriately address the academic needs of the class as a whole. Changes to the class schedule will be announced as far in advance as possible. Regular class attendance will guarantee your knowledge about any changes to the class schedule.**