Food Product Development

Department: Food and Human Nutritional Sciences
Course Number: FOOD 4510/HNSC 4280

Academic Session: 2017-2018
Credit Hours: 3

Prerequisites and how they apply to this course:
MKT 2210, STAT 2000 or equivalent, plus either FOOD 3010 or HNSC 3330. The marketing course is required as knowledge of market requirements and marketing products is critical to the success of new products. The statistics course provides the background for designing experiments and evaluating data for variables associated with new products. Knowledge of food ingredients and how they react in food systems is also important in product development and therefore FOOD 3010 or HNSC 3330 are required.

Classroom Location: Agriculture Building, room # 245
Meeting Days and Class Hours: TR 11:30-12:45pm
Lab Location: NA
Lab/Hours: NA

Department Office location: Ellis Building, RM 250
Learning management system for this course: UMLearn

Instructor Information
Name & Title: Claudia Narvaez, DVM, M.Sc. PhD. Assistant Professor.
Office Location: Ellis Building room # 238
Office Phone Number: 474-6658
Office Hours: by appointment. To make an appointment please use D2L email system (Claudia.narvaezbravo@ad.umanitoba.ca)

Name & Title: Michel Aliani, PhD. Professor
Office Location: Human Nutritional Sciences and Saint Boniface Hospital Research Center
Phone: 204-474-8070 or 204-235-3048
Office Hours: by appointment. To make an appointment please use D2L email system Michel.Aliani@umanitoba.ca

Teaching Assistant:
Emelia Adator
adatore@myumanitoba.ca

Office Hours: by appointment through email.
Location: room 213
Students’ Learning Responsibilities

The student is expected to participate actively in the course. Active participation means: actively listening and responding to questions in class (I do not expect perfection); staying on top of lecture material and assignments and seeking help on course material that is not clear. PowerPoint presentations summarize only a portion of the knowledge content that needs to be covered in class. For the rest of the contents, you are expected to read the required textbook.

I expect students to arrive on time and to be prepared to learn. Please do not use your personal electronic devices during class unless you are using them to take lecture notes.

If you do arrive late, I expect you to take your seat quietly, do not disrupt the class and to join in as soon as you are able. I expect that you will appreciate the diversity of our campus and respect the rights of each member of the class. Attendance and participation are essential elements to the student’s success in this course. Attendance is not mandatory. However, you will not get credit for an in-class assignment if you are absent on the day it is given.

I will be in class for 10 minutes prior to the class, if you need to ask a quick question or talk to me about any issue related to the class. I will treat you with respect and will appreciate the same courtesy in return. For more information regarding a respectful work and learning environment please visit the following link: http://umanitoba.ca/admin/governance/governing_documents/community/230.html

What you can expect from me?

You can expect me to be on time and prepared for class.

You can expect me to be available for consultation regularly.

Email is my preferred method of communication and you can expect to receive a response to any email within 24 hours on weekdays.

If you have a question that cannot wait, you may send an email. I will be happy to answer it, however make sure you are asking a relevant question (i.e. you could not find the answer or get an understanding of the material after reviewing the class notes or textbook). I will be glad to offer brief advice about class material or an assignment.

All assignments handed in on time will be graded and returned within 2 weeks of the due date; late assignments will be graded as my time permits.

You can expect me to treat all of your questions and comments with respect and to take your concerns seriously. If you are having a problem, don’t hesitate to talk to me about it. Don’t wait until the last moment to realize that you need some marks to pass the course! I won’t be able to help you at this point.

Why this course is useful?

The course should provide some insight into the development of food products within a food processing company while giving students a chance to see one way to apply what they have learned in their program. In addition to the technical aspects of prototype development, students will learn the relevant aspects of supply chain management, marketing and business plan development.

Who should take this course?

This is a required course for all students in the Food Science Program (both science and business options) as well as students in the Food Option or Food Industry Option in Human Nutritional Sciences. It can be taken as an elective by Human Nutritional Science students in other options who have a desire to learn about developing new products. Students from other programs with the necessary background are also welcome to take this course.
Course Description/Objectives

Undergraduate Calendar Description: This course will allow the student to gain an understanding of the product development procedure as it relates to the food industry. Emphasis will be on application of basic knowledge of foods and food processing in designing a new product.

Foundational Knowledge Content Areas for Dietetics Education:

This dietetic education program is an accredited program recognized by the Partnership for Dietetic Education and Practice (PDEP) and prepares students for eligibility for registration with a provincial dietetics regulatory body.

Highest level achieved: 1 = demonstrate broad knowledge; 2 = demonstrate comprehension; 3 = analyze, interpret and apply knowledge

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Foundational Knowledge</th>
<th>Cognitive Complexity Level</th>
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</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Communication channels and techniques, and their appropriate usage</td>
<td>3</td>
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<tr>
<td></td>
<td>Physical properties and chemical composition of food</td>
<td>2</td>
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<td>Food preservation, storage and packaging</td>
<td>3</td>
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<td>The role of ingredients and their interaction in food preparation</td>
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<td>Application of dietary requirements, guidelines, and guidance tools to food planning</td>
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<td>Food modification to address therapeutic, textural or other needs</td>
<td>3</td>
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<td>Sensory evaluation of food</td>
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<td>Food labeling</td>
<td>2</td>
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<td>Food Service Systems</td>
<td>Recipe development, standardization and evaluation</td>
<td>3</td>
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<td>Quantity food production and distribution</td>
<td>1</td>
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<td>Cost control</td>
<td>1</td>
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<td></td>
<td>Human resource, financial, technical and equipment needs</td>
<td>1</td>
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<td></td>
<td>Hazard Analysis and Critical Control Points (HACCP)</td>
<td>3</td>
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<tr>
<td>Human Nutrition across the Lifespan</td>
<td>Nutrition recommendations and guidelines</td>
<td>2</td>
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<td>Effect of deficiencies and toxicities of nutrients</td>
<td>2</td>
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<td></td>
<td>Food sources of nutrients and dietary supplements</td>
<td>1</td>
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<td></td>
<td>Role of nutrients and other food components in health</td>
<td>1</td>
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<td>Interprofessional Collaboration Management</td>
<td>Team Functioning</td>
<td>3</td>
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<td></td>
<td>Collaborative leadership</td>
<td>3</td>
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<td>Interprofessional conflict resolution</td>
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<td>Management</td>
<td>Financial management</td>
<td>1</td>
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<td></td>
<td>Strategic and operational planning including needs assessment, goal setting and outcome assessment</td>
<td>3</td>
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<td></td>
<td>Organizational behaviour and development</td>
<td>2</td>
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<td></td>
<td>Project management</td>
<td>2</td>
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</table>
Instructional Methods

Lectures, group activities, in class questioning/discussions and debates.
Class exercises in designated classes to stimulate critical thinking and problem solving.
Use of active learning strategies with students’ participation.
Special presentations and a lot of group work using laboratories, kitchens and sensory evaluation facilities. In developing a new product, students must determine what issues need to be addressed and find a way of addressing them. Much of the learning is through the hands on activities required for product development.

Course General Goals and Objectives

1. Know the principles of new product design
2. Apply previous knowledge of food chemistry, food microbiology, food processing and nutrition in the development of a new product.
3. Apply knowledge of sensory Science to Food Product Development
4. Apply knowledge of statistics in relation to development of a new product
5. Communicate effectively both in writing and orally
6. Utilize a variety of resources (including library) to effectively determine issues to be addressed in developing a new product.
7. Function in a group of people with diverse backgrounds.
8. Incorporate the input of different disciplines in product design.
9. Learn how to function as a team
10. Develop collaborative leadership

Assessment

a) Description of Examinations:
Term and final exams will be comprised primarily of a combination of short answer questions, situations to be addressed, multiple choice and essay questions.

Description of Assignments: There will three group assignments to be completed within this course. These assignments will be distributed at appropriate times and posted on UMLearn.
b) Class Participation:
Each class member is expected to contribute to some of the class discussions. You may participate by:
1. Asking a question.
2. Responding to a question.
3. Making a comment or observation.

Grade Evaluation

Assignments - group 10%
Food Fight at the Forks 10%
Midterm 1 15%
Final Product Report and Presentation 30%
Final Exam 35%

Standardized grades used are those followed by the Food Science Department:
A+ 90 - 100%
A 80 - 89%
B+ 75 - 79%
B 67 - 74%
C+ 61 - 66%
C 56 - 60%
D 50 - 55%
F Under 50%

Note: Grades will not be curved.

Important Dates

Important Dates (e.g., voluntary withdrawal date): See University calendar.
Voluntary Withdrawal Deadline March 16, 2018

Texts, Readings, Materials

I will be using the TopHat student response system in class this Fall 2015 term. TopHat helps me to understand what you know and gives everyone a chance to participate in class.

Textbook(s)
There are no required text books for this course. Notes will be posted on Desire2Learn by the instructor.

Supplementary Reading: A number of helpful references are available on-line (links posted in Desire2Learn) or in the University of Manitoba Libraries. They include:


Additional Materials:
PowerPoint slides or handouts: You will be able to download and/or print any relevant notes, PowerPoint slides or handouts from UMLearn. The Power Point slides will be posted in UMLearn.

Course Policies

Late Assignments: Assignment Due Dates: Unless otherwise stated, due dates will be two weeks after the assignment has been distributed. Marks will be reduced by 5% of the value of the assignment for each business day the assignment is late. The late deduction will apply to all group members. There will be class time to work on assignments. This information posted on UMLearn concerning the proper use of references in all assignments and the final project. Peer evaluation during final exam may affect mark received for group work.

Note: Be aware of the folders assigned for each assignment in UML; if you use a different folder by mistake that will be your responsibility to load the assignment in the right folder and it will be marked as late. Notice that I won't accept assignments through email.

Group Work Policies: You are expected to complete group work in a professional fashion. You will be given an opportunity to provide a peer evaluation of group members at the time of the final exam. Marks may be adjusted based on this feedback. Completion of the peer evaluation request should be done in a fair and reasonable fashion. It is unlikely that all group members warrant a perfect peer rating.

Make up exams or absence: Attendance is essential to student success in this course. Attendance will be taken each class period using TopHat. Make-up exams, assignments or absence on required days will be given only with the professor’s permission. Arrangements should be made with the professor for excused absences or in the case of missed exams.
Note: it will be your responsibility to make sure your TopHat system is properly working; you will have a week to test the system. If the system is not properly working you must contact TopHat help.

COURSE TECHNOLOGY
It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Disability Services.

If you are using a wiki or a UM Learn, explain how to get access and navigate in these technologies. (see the Centre For The Advancement Of Teaching & Learning for details on f2f and online resources).

You may link to the Centre’s instructional videos on accessing and contributing to wikis and blogs at http://intranet.umanitoba.ca/academic_support/Centre_for_the_Advancement_of_Teaching_&_Learning/resources/wikis_blogs.html.

POLICY ON CLASS COMMUNICATION
The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit: http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf

Please note that all communication between me and you as a student must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.

RECORDING CLASS LECTURES
Dr. Narvaez, Dr. Aliani and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission of {YOUR NAME.} Course materials (both paper and digital) are for the participant’s private study and research.

USING COPYRIGHTED MATERIAL
Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and University guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the Copyright Act applies or written permission has been confirmed. For more information, see the University’s Copyright Office website at http://umanitoba.ca/copyright/ or contact um_copyright@umanitoba.ca.

PLAGIARISM AND CHEATING
Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones). Exam cheating can also include exam personation. (Please see Exam Personation, found in the
Examination Regulations section of the General Academic Regulations). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

To plagiarize is to take ideas or words of another person and pass them off as one’s own. In short, it is stealing something intangible rather than an object. Plagiarism applies to any written work, in traditional or electronic format, as well as orally or verbally presented work. Obviously it is not necessary to state the source of well-known or easily verifiable facts, but students are expected to appropriately acknowledge the sources of ideas and expressions they use in their written work, whether quoted directly or paraphrased. This applies to diagrams, statistical tables and the like, as well as to written material, and materials or information from Internet sources. To provide adequate and correct documentation is not only an indication of academic honesty but is also a courtesy which enables the reader to consult these sources with ease. Failure to provide appropriate citations constitutes plagiarism. It will also be considered plagiarism and/or cheating if a student submits a term paper written in whole or in part by someone other than him/herself, or copies the answer or answers of another student in any test, examination, or take-home assignment.

Working with other students on assignments, laboratory work, take-home tests, or on-line tests, when this is not permitted by the instructor, can constitute Inappropriate Collaboration and may be subject to penalty under the Student Discipline By-Law.

An assignment which is prepared and submitted for one course should not be used for a different course. This is called “duplicate submission” and represents a form of cheating because course requirements are expected to be fulfilled through original work for each course.

When in doubt about any practice, ask your professor or instructor.

The Student Advocacy Office, 519 University Centre, 474-7423, is a resource available to students dealing with Academic Integrity matters.

**STUDENTS ACCESSIBILITY SERVICES**

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

**Student Accessibility Services** [http://umanitoba.ca/student/saa/accessibility/](http://umanitoba.ca/student/saa/accessibility/)

520 University Centre

204 474 7423

[Student_accessibility@umanitoba.ca](mailto:Student_accessibility@umanitoba.ca)

**OTHER STUDENT SERVICES**

**Writing and Learning Support:**

The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor’s feedback.

These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: [http://umanitoba.ca/student/academiclearning/](http://umanitoba.ca/student/academiclearning/)

You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 201 Tier Building.

**University of Manitoba Libraries (UML):**
As the primary contact for all research needs, your liaison librarian can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians can be found by subject or by name: http://bit.ly/1tJ0bB4. In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the following: http://bit.ly/1sXe6RA. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries’ homepage: www.umanitoba.ca/libraries.

**Student Counselling Centre (SCC):**
Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. Student Counselling Centre: http://umanitoba.ca/student/counselling/index.html
474 University Centre or S207 Medical Services
(204) 474-8592

**Student Support Case Management:**
Contact the Student Support Case Management team if you are concerned about yourself or another student and don’t know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.
Student Support Intake Assistant http://umanitoba.ca/student/case-manager/index.html
520 University Centre
(204) 474-7423

**For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.**

**University Health Service:**
Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.
University Health Service http://umanitoba.ca/student/health/
104 University Centre, Fort Garry Campus
(204) 474-8411 (Business hours or after hours/urgent calls)

**Health and Wellness:**
Contact our Health and Wellness Educator if you are interested in information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault.
Health and Wellness Educator http://umanitoba.ca/student/health-wellness/welcome.html
Katie.Kutryk@umanitoba.ca
469 University Centre
(204) 295-9032

**Live Well @ UofM:**
For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site:
http://umanitoba.ca/student/livewell/index.html

**Your Rights and Responsibilities:**
As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school. The Academic Calendar http://umanitoba.ca/student/records/academiccalendar.html is one important source of information. View the sections University Policies and Procedures and General Academic Regulations.
While all of the information contained in these two sections is important, the following information is highlighted.
• If you have questions about your grades, talk to your instructor. There is a process for term work and final grade appeals. Note that you have the right to access your final examination scripts. See the Registrar’s Office website for more information including appeal deadline dates and the appeal form http://umanitoba.ca/registrar/

• You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the Academic Integrity regulation. Consult the course syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support http://umanitoba.ca/academicintegrity/ View the Student Academic Misconduct procedure for more information.

• The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected conduct yourself in an appropriate respectful manner. Policies governing behavior include:

Respectful Work and Learning Environment
http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Student Discipline
http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html

Violent or Threatening Behaviour
http://umanitoba.ca/admin/governance/governing_documents/community/669.html

• If you experience Sexual Assault or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The Sexual Assault policy may be found at: http://umanitoba.ca/admin/governance/governing_documents/community/230.html More information and resources can be found by reviewing the Sexual Assault site http://umanitoba.ca/student/sexual-assault/

• For information about rights and responsibilities regarding Intellectual Property view the policy http://umanitoba.ca/admin/governance/governing_documents/community/235.html

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site http://umanitoba.ca/faculties/

Contact an Academic Advisor within our faculty/college or school for questions about your academic program and regulations http://umanitoba.ca/academic-advisors/

Student Advocacy:
Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.
http://umanitoba.ca/student/advocacy/
520 University Centre
204 474 7423
student_advocacy@umanitoba.ca

Additional comments

If you have any conflict with these scheduled lectures, activities, etc talk to the professor now (that is, at the beginning of the semester). Please don’t wait until the exam time to present your conflict.

If you are struggling with coursework or any of life’s other challenges, please familiarize yourselves with the resources available to you by visiting the Student Affairs website at http://umanitoba.ca/student/index.html. The site contains helpful general information as well as links to webpages for the Aboriginal Student Centre, the International Centre for Students, the Academic Learning Centre, Student Advocacy & Accessibility, the Student Counselling & Career Centre, and University Health Service.
### Course Content

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<tr>
<th>Topic</th>
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<tr>
<td>1. Introduction and general information /networking and group designation</td>
<td>Jan 4</td>
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<td>2. Team work</td>
<td>Jan 9</td>
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<td>3. Food product development introduction and considerations</td>
<td>Jan 11 Jan 16</td>
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<td>Food product development</td>
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<td>Classes of new food products</td>
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<td>Project planning</td>
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<td>4. Sensory testing</td>
<td>Jan 18</td>
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<td>5. Sensory testing</td>
<td>Jan 23</td>
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<td>6. Market Research in the Development of New Food Products</td>
<td>Jan 25</td>
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<td>7. Test Market: Factors influencing final evaluation of product</td>
<td>Jan 30</td>
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<td>8. Financial Analysis in Product Development</td>
<td>Feb 1</td>
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<td>9. Midterm 1</td>
<td>Feb 6</td>
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<td>10. Experimental design in product development</td>
<td>Feb 8</td>
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<td>11. Other considerations in product development</td>
<td>Feb 13</td>
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<td>12. Remaining time to finish lectures</td>
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<td>13. Class time to work on projects</td>
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<td>14. Winter term brake</td>
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<td>15. Food Fight at the Forks</td>
<td>Saturday March 17, 2018</td>
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<td>Group Presentations</td>
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<td>Final Examination TBD</td>
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Note: FM4510 Calendar can be subjected to changes.
Food Fight at the Forks: Saturday March 17, 2018

### Assignment Description

Go to UML and review the folder: Group assignment (under table of contents), you will find a detailed assignment description plus rubrics.

### Citation style

All written assignments in this course shall include in-text citation.

Citation style: APA style:

http://mypages.iit.edu/~aroback/research_paper/style/style4.html