

I. Self Assessment

A. Current strengths in teaching, research and citizenship

I had a wonderful experience as an undergraduate at BYU. I felt the classes were rigorous and intellectually stimulating. I felt that the courses stretched me to learn concepts and be able to apply them. The push to have undergraduate students participate in research solidified what I had learned in classes, and raised new questions. Above all, the knowledge that the professors cared about my intellectual and spiritual growth has been paramount to my successes as a researcher and an instructor. As a faculty member at BYU, I feel the importance of helping my Heavenly Father's sons and daughters by helping them grow as scientists while deepening and strengthening their testimonies of our Savior's atonement.

My strengths in teaching come from experiences as a TA while at BYU, a departmental tutor while a graduate student at the University of Colorado, and as an adjunct assistant professor at North Carolina Central University and Elon University during my postdoctoral fellowship at Duke University. I had the opportunity to develop new curriculum and to teach varied topics from microbiology to cell biology, from metabolism to evolution and ecology. I have given many seminars, invited talks and other presentations that have allowed me to develop the ability to communicate scientific ideas and concepts. I have taught classes that range in size from 12 students to 120 students. In addition I have mentored research as a graduate student and a postdoctoral fellow. I have mentored MD fellows, new graduate students, as well as a high school student that won third place in the 2009-10 Siemens Competition. I have learned from these experiences that teaching is a very rewarding experience.

As a graduate student I studied pancreatitis-induced diabetes, and the protective role of macrophages in this disorder under the mentorship of Dr. James DeGregori at the University of Colorado Health Sciences Center. I completed a postdoctoral fellowship at Duke University's Sarah W. Stedman Center Nutrition and Metabolism Center with Dr. Christopher Newgard. There I studied beta-cell biology and control of beta-cell growth as a potential therapeutic for diabetes. I have published in the Proceedings of the National Academy of Sciences and Diabetes. Since August, my group here at BYU has been continuing these studies with many interesting findings that we hope will soon lead to publications and external grant funding. My lab currently has 10 undergraduates who all work a minimum of 10 hours a week on various research projects. My interactions with these students involved daily mentoring and guiding of research projects, as well as teaching laboratory techniques. Two of these students applied for and received ORCA grants this year.

My current citizenship involves serving on the department undergraduate education committee, scholarship committee and the seminar committee. I also serve on the college research committee as a MEG Ad Hoc Reviewer. This last year I also served on the Juvenile Diabetes Research Foundation FY14 Biomarkers of

Pancreatic Beta cell stress and health RFA Review panel. In addition to my recent experience at BYU, I also served on the graduate school recruiting and admissions committee at the University of Colorado. As a graduate student I was tasked with the responsibility of visiting BYU and the University of Utah to recruit students for the graduate programs. My responsibilities also included deciding with the rest of the committee (4 students, 4 faculty) those students that we would interview and those students to whom we would extend offers.

B. Areas for Development in Teaching, Research and Citizenship.

As a new professor at BYU, I recognize that I have many areas where I can improve myself. While I have teaching experience, my personal goal is to improve my teaching quality and effectiveness. These are the aspects of teaching I will focus on for improvement:

1. Use online student rating results to make course improvements.
2. Use the SCOT program
3. Improve quality of exams with help of CTL consultants
4. Share and discuss teaching strategies and materials with another instructor.
5. Memorize student names.
6. Continue to develop NDFS 435 curriculum to prepare students for careers and further education.
7. Complete Winter/Spring 2014 faculty development series.
8. Attend Learning Suite training course.
9. Participate as peer reviewer in the department to observe other teaching styles.
10. Have my teaching reviewed by a department peer annually.

A large part of my responsibility as a faculty member at BYU is to grow and maintain a vibrant research program. To maintain a quality diabetes research program that will benefit the mission of BYU, it is imperative that I acquire external funding. This requires promising preliminary data and excellent grant writing skills. In addition to these requirements, it is essential to submit many grant proposals in order to achieve success in today's funding climate. It will also be critical to choose areas of diabetes research that are exciting to promote my research and form collaborations by interacting with the scientific community. Therefore, the aspects of research that I will focus on for improvement are:

1. Discuss ideas for research and creative works with colleagues.
2. Network with scholars and professionals at other institutions.
3. Attend one professional meeting a year.
4. Set aside regular time each week to stay current on the literature.
5. Apply for MEG grant and encourage at least four students to apply for ORCA awards.
6. Maintain a lab of between 10-15 undergraduates and 1-2 masters students.
7. Set aside daily blocks of time to write (one hour a day).

8. Share early drafts of work, and send drafts to Faculty Editing Service.
9. Publish one article in 2014.
10. Begin collaborations with three groups in 2014.
11. Apply for three grants in 2014: American Diabetes Association, Juvenile Diabetes Research Foundation, National Institute of Diabetes, Digestive and Kidney Diseases

I intend to be a valuable asset to my department, college and to BYU as a whole. My goal is to learn to serve effectively and efficiently on committees. I have appreciated the examples of good colleagues that I have here in the NDFS department. My goal is to be a good colleague. To that end, the areas that I will focus on for improvement are:

1. Serve effectively on the department undergraduate education committee and seminar committee. I will also serve effectively on the college MEG review committee.
2. Willingly accept Department, College, and University citizenship assignments.
3. Participate actively in department and committee meetings.
4. Develop a research-in-progress seminar series to promote collaborations between nutrition research groups.
5. Serve students through mentoring, office discussions, and career counseling.

II. Teaching Goals

A. Teaching Philosophy

My teaching efforts should be focused on helping my students grow intellectually as scientists and spiritually as disciples of Christ. I hope to instill in my students an understanding of nutritional biochemistry, the awareness that they can be successful in all aspects of learning, and knowledge of their divine relationship with God and His interest in their growth and development.

B. Teaching Goals

1. Use online student rating results to make course improvements.

Plan: Encourage students to do end of semester course ratings through grade incentives. Assess the data and apply suggestion to make improvements to course and teaching style

Resources Required: None

2. Use the SCOT program during Fall 2014 and Winter 2015 semesters.

Plan: Work with faculty center to arrange SCOT review. Assess the recommended changes and improvements and implement those that will be beneficial to my students.

Resources Required: Time and attention of SCOT consultant.

3. Improve quality of exams with help of CTL consultant

Plan: Work with BYU center for teaching and learning to improve student-learning assessments. Assess the recommended changes and improvements and implement those that will be beneficial to my students.

Resources Required: Time and attention of CTL consultant.

4. Share and discuss teaching strategies and materials with another instructor.

Plan: Meet with department colleagues to discuss teaching strategies and materials that they find useful. Attend their courses to see how these materials and techniques are used.

Resources Required: None.

5. Memorize student names.

Plan: Use CTL flashcards to memorize student names for the course that I teach.

Resources Required: None.

6. Continue to develop NDFS 435 curriculum to prepare students for careers and further education.

7. Complete Fall 2013 and Winter/Spring 2014 faculty development series.

Plan: Attend the Fall 2013 and Winter/Spring 2014 faculty development series for new faculty. Work closely with mentor (Merrill Christensen) and department chair to complete materials and to prepare for a successful 3 and 6 year review.

Resources Required: None.

8. Attend Learning Suite training course.

Plan: Schedule attendance at Learning Suite training course. Use training to build learning suite material for the classes that I teach.

Resources Required: None.

9. Participate as peer reviewer as assigned in the department to observe other teaching styles.

Plan: Work with department chair to get assignment to peer review another faculty member in the department. Review the course materials and attend their class and incorporate useful concepts and techniques into my courses.

Resources Required: None.

10. Have my teaching reviewed by a department peer annually.

Plan: Work with department chair to have my teaching peer reviewed by another faculty member in the department.

Resources Required: None

C. Relationship of teaching goals to university aims

My goals are focused on making me a more effective teacher. As a more effective teacher, I can meet the University aims of: "A BYU education should be spiritually strengthening, intellectually enlarging, and character building, leading to lifelong learning and service."

III. Research Goals

A. Research Philosophy

I believe that research in the nutritional sciences should have application to bless the lives of our Heavenly Father's children. While research may allow us to understand interesting pieces of information, I believe the purpose of research at BYU is not to do "gee-wiz" science but science with applications. Research with the ultimate goals of helping humanity is tremendously fulfilling. I believe that an open collaborative environment where cutting edge questions can be addressed offers the best chance for research success.

B. Research Goals

1. Discuss ideas for research and creative works with colleagues.

Plan: Make time weekly to discuss research proposals with colleagues in the department, college and university. Actively seek for potential collaborations and implement ideas suggested by colleagues.

Resources Required: None

2. Network with scholars and professionals at other institutions.

Plan: Maintain contacts that I have made at the University of Colorado and Duke University. Reach out to diabetes researchers within the university at the University of Utah. Make contacts at professional meetings.

Resources Required: None

3. Attend one to two professional meetings a year

Plan: Attend the Experimental Biology and/or American Diabetes Association national meetings. Use the time there to learn about cutting edge research and to make contacts with scholars at other institutions (See research goal 2)

Resources Required: Financial support for travel expenses

4. Set aside regular time each week to stay current on the literature.

Plan: Set aside 30-60 minutes a day to read the current literature. Specifically look for reports and findings that may have implications on my areas of interest.

Resources Required: None

5. Apply for MEG grant and encourage at least four students to apply for ORCA awards.

Plan: Build mentoring environment conducive for receiving the MEG grant. Begin planning application for next years deadline in October 2014.. Groom students to be part of the MEG proposal. Encourage students to apply for ORCA awards by training with lab experiments now and helping them begin writing their proposals.

Resources Required: None

6. Initiate research in the area of diabetes biology, maintain a lab of between 10-15 undergraduates and 1-2 masters students.

Plan: Get to know freshman and sophomore students by visiting lower level NDFS classes. Set up meaningful research projects for students. Recruit masters students to the lab. Use internal funding to initially support research, while acquiring outside funding from granting agencies. Seek internal MEG and ORCA funding to support students. We will have a weekly lab meeting were we will discuss current and potential projects.

Resources Required: Need start up funding for lab equipment and supplies. Need internal funding for graduate students and undergraduate RAs until external

funding can be obtained. Help identifying students with potential research interest in my lab. Work with Department Chair and Nutritional Science program coordinator to limit teaching load during the first 3 years of my appointment.

7. Set aside daily blocks of time to write (one hour a day).

Plan: Set aside the hours from 3-4pm daily to write grants, manuscripts, reviews etc.

Resources Required: None.

8. Share early drafts of work, and send drafts to Faculty Editing Service.

Plan: I will send drafts of manuscripts to colleagues in the department, college and university for their critical review. I will use the BYU Faculty Editing Service to edit the manuscript prior to submission. I will take the critiques and suggestions from these sources and use them to make myself a better scientist and writer.

Resources Required: None.

9. Submit one article in 2014.

Plan: I will submit one article in 2014 based on research that is currently being pursued in my laboratory

Resources Required: None.

10. Begin collaborations with three groups in 2014.

Plan: I will pursue collaborations with three groups during 2014. Potential collaborations are with Dr. Hancock, Dr. Bickman of PDBio and Dr. Anderson of BioChem. These labs have research projects that complement projects that are in nascent stages in my lab.

Resources Required: None.

11. Apply for three grants in 2014: American Diabetes Association, Juvenile Diabetes Research Foundation, National Institute of Diabetes, Digestion and Kidney Disorders.

Plan: I will apply for a minimum of three grants between now and February 2015. I will submit grant applications with the JDRF (July 2014-Career development grant and innovation grant), NIH-NIDDK (June 2014-R01 and R15) and ADA (January 2015-Basic Science Research, innovation research, Junior faculty development or career development awards). In addition, I intend to apply for smaller grants from the Iacocca Family Foundation, Diabetes Research Wellness Foundation and Diabetes Action Research.

Resources Required: Support from department and college in applying for these grants in the way of funding to generate preliminary data.

C. Relationship of research goals to university aims

I believe being involved in cutting edge research is an essential part of a university education. I believe for me to be an effective educator I must stay at the top of my field. I believe that my goals completely conform to the universities goals in this area. Scientific publication and external grant support will help me attain these goals.

IV. Citizenship Goals

A. Citizenship Philosophy

As a member of the NDSF department, Life Sciences College and BYU I recognize the responsibility to serve the organization as a whole. I recognize that citizenship in this community as a right, privilege and duty. I am anxious to serve in any capacity that I am needed. I recognize that it is through this infrastructure that BYU can continue to improve in its goals of educating our wonderful students.

B. Citizenship Goals

1. Serve effectively on the department undergraduate education committee and seminar committee. I will also serve effectively on the college MEG review committee.

Plan: I will actively participate in the committees of which I am a member. I will ask questions and I will offer suggestions. I will volunteer for responsibilities and to attend college committee meetings. In regards to the MEG review committee I will provide meaningful feedback to the applicants. I will also serve in any capacity that my Department Chair ask me to. Finally, I will learn from the other committee members.

Resources Required: None

2. Volunteer for committee assignments.

Plan: As stated above, I will be an active participant and will volunteer so as to do my part.

Resources Required: None

3. Participate actively in department and committee meetings.

Plan: I will not be a passive observer. I will ask questions and bring up ideas. I will be respectfully vocal. I will be certain to volunteer for any committee assignments.

Resources Required: None.

4. Develop a research in progress seminar series to promote collaborations between nutrition research groups.

Plan: I would like to develop a research in progress seminar to promote collaborations between groups that are doing nutrition and metabolic research. I feel this would increase research collaborations between the four bench scientists in our department, as well as other scientists within the university. It would be an excellent place for students to learn about the research, and could increase the amount of our nutrition students that are involved in bench research.

Resources Required: Support from department

5. Serve students beyond those commitments entailed by my course work

Plan: I will find time outside of class to spend with students. I have an open door policy for the students in my lab, and many have stated that they appreciate being able to come and talk to me about science or what ever is going on in their lives. I am confident that service to students beyond class time is a beneficial form of service.

Resources Required: None.

C. Relationship of citizenship goals to university aims

At BYU, all of the programs are intended to make their “contribution toward the balanced development of the total person.” We seek to mold individuals at BYU that will “bring strength to others in tasks of home and family life, social relationships, civic duty, and service to mankind.” I believe that my goals will help me stay aligned with these missions, and help those that I am tasked to assist as well.

V. Progress made towards goals

A. Teaching

I have already spoken with Dr. Hancock and Dr. Parker regarding the textbooks they use in class, as well as the teaching techniques that they use. I sat in Dr. Parker’s class last semester, and was able to learn many of his techniques.

I am currently memorizing the names of my students in NDFS 435

I attended the Fall 2013 faculty development series in its entirety. I am in discussion with Dr. Christensen to be my faculty mentor.

I have attended a learning suite training course, and am becoming familiar with its use. I intend to take refresher courses.

I participated as a peer reviewer for Dr. Frost Steele during the Fall 2013 semester. This was beneficial because it taught me the review process and allowed me to observe his teaching style.

B. Research

I have discussed frequently my research with Dr. Hancock and Dr. Bickman. We have potential upcoming collaborations. I also presented at the Chemistry department speed networking meeting which gave me the opportunity to meet a number of faculty between that have similar research interests.

I am currently finding time each week to read and to write.

I applied for a MEG grant this last year, and had two students apply for ORCA awards. While I did not receive the MEG award, I did learn quite a bit as a MEG reviewer regarding what is expected in the MEG applications. As such, I feel that I can write a more competitive application next year.

My lab is still in its early stages. I have purchased some of my equipment, which is in storage until lab space opens. Having said that, we now have an active group with

10 undergraduate students volunteering in the lab. Each of these students' volunteers 10 hours a week, and have projects that they work on in teams. Data is beginning to be generated.

C. Citizenship

I am currently serving on the undergraduate education and seminar committees. I attended the college undergraduate education committee meeting in September. It was a learning experience. I also successfully invited Dr. Patrick Fueger to speak in our seminar series. Finally, I served on the college MEG review panel, where I was responsible for reviewing 14 grants.

I am actively participating in department meetings. I frequently volunteer for assignments.

Scholarship Strategies Proposal

As a graduate student I studied pancreatitis induced diabetes, and the protective role of macrophages in this disorder under the mentorship of Dr. James DeGregori at the University of Colorado Health Sciences Center. I completed a postdoctoral fellowship at Duke University's Sarah W. Stedman Center Nutrition and Metabolism Center with Dr. Christopher Newgard. There I studied beta-cell biology and control of beta-cell growth as a potential therapeutic for diabetes. I have published in the Proceedings of the National Academy of Sciences and Diabetes. Since August, my group here at BYU has been continuing these studies with many interesting findings that we hope will soon lead to publications and external grant funding. My lab currently has 10 undergraduates who all work a minimum of 10 hours a week on various research projects. My interactions with these students involved daily mentoring and guiding of research projects, as well as teaching laboratory techniques. Two of these students have applied for an ORCA grant.

Scholarly Goals to be completed by February 2014

1. Submit a proposal as a primary investigator to the National Institutes of Health, American Diabetes Association and BYU for the Mentored Environment Grant.
2. Submit 1-2 manuscripts this year for publication.
3. Develop a lab website to attract quality graduate students
4. Submit one abstract for presentation at the Experimental Biology conference in April 2015

Strategies of Scholarly Productivity

To meet the 4 goals listed above, I will use the following strategies to help me be more efficient and productive in my scholarly activity:

1. Set aside daily blocks of 30 minutes a day write (grants, manuscripts)
2. Write in the library so that distraction from colleagues, students and phone are diminished
3. Meet with Merrill Christensen (department mentor) bi-weekly to discuss early drafts and to receive critical feedback.
4. Meet with collaborators one every two weeks to discuss projects and to maintain accountability.

Methods of Evaluation

I will measure success by my productivity. I will submit the first manuscript by the end of June. The second manuscript will be submitted by the end of November. The lab website has been approved and I will have it running by the end of summer term. The abstract for Experimental Biology will be submitted by November 6, 2014. I will evaluate these goals at multiple points throughout the next nine months. I will re-evaluate and adjust strategies as needed to reach my goals.

Citizenship Project Proposal

As a member of the NDSF department, Life Sciences College and BYU I recognize the responsibility to serve the organization as a whole. I recognize that citizenship in this community as a right, privilege and duty. I am anxious to serve in any capacity that I am needed. I recognize that it is through this infrastructure that BYU can continue to improve in its goals of educating our wonderful students. As a member of the NDFS department, I have had the opportunity to serve on the MEG review committee, as a member of the department undergraduate education committee and on the seminar committee. I have been able to participate in two faculty search committees. I have enjoyed the opportunity to mentor students in my laboratory research and in the classroom. I will eagerly accept any new committee assignments given to me by my department chair.

Specific Goals:

Between now and February 2015, I will work on the following citizenship based goals:

- 1. Observe colleagues' teaching and invite colleagues to observe yours-**I will invite Chad Hancock, Jason Kenealey and Merrill Christensen to attend my course (NDFS 435-Nutritional Biochemistry). I will solicit feedback from these bench scientists on better teaching in my nutritional biochemistry course. I will also attend courses taught by Dr. Hancock and Dr. Christensen to learn their techniques.
- 2. Collaborate on a research project with a colleague-**I will begin working with Dr. Hancock on a project looking at mitochondrial activity in beta cells. We will present our findings at the 2015 EB meeting and anticipate submitting a manuscript by the end of the year.
- 3. Develop a new course and team-teach with a colleague-**Dr. Jason Kenealey and I will develop NDFS 434-Nutritional Bioorganic chemistry for dietetics students. We will begin teaching the first iteration of this course in Winter 2015. This will allow me to apply some of the techniques that I learned in the spring semester, as well as increase collaborations with Dr. Kenealey.

Course Development Project Grant Proposal

I will be teaching NDFS 435-Nutritional Biochemistry for the second time this fall. During my first semester teaching, I learned that I need more background in the area. I have spent most of the time since the end of the semester studying more in depth the concepts that I will be teaching in the course.

My students also are frequently asking about other reference material that they can delve into as they study the particular topics. They are sometimes at a loss where else they can go for more information that is a reputable source.

I request \$300 to buy reference material for my study prior to the beginning of the semester, and to be placed in the course reserve section for my students use during fall and winter semester. The three texts that will be purchased are 1) Clinical Studies in Medical Biochemistry by Robert Glew (\$43.00 at Amazon), 2) Medical Biochemistry by John Baynes (\$72.15 at Amazon) 3) Case Studies in Physiology and Nutrition by Lynne Berdanier (\$66.87 at Amazon) and 4) Nutritional Biochemistry by Tom Brody (\$108.63 at Amazon). These texts will help me prepare for the course, help the students as they study the concepts, and be useful during in class presentations.

NDFS 435 - Nutritional Biochemistry

Fall 2014

Section 001

Instructor/TA Info

Instructor Information

Name:

Office Location:

Office Phone:

Office Hours:

Or By Appointment

Email:

TA Information

Name:

Email:

Course Information

Description

In NDFS 435 Nutritional Biochemistry, we will learn about the macronutrients, vitamins and minerals that are essential for life. We will learn how the body digests, transports, stores and excretes these nutrients. We will focus on the metabolic pathways where these nutrients function, and the biochemical manner by which they are essential for life. We will apply these biochemical and metabolic functions to disease states that correlate with over-nutrition, under-nutrition and genetic deficiencies.

Prerequisites

NDFS 200, PDBio 305, Chem 481 or equivalent.

Materials

Image	Item	Vendor	Price (new)	Price (used)
	Advanced Nutrition and Human Metabolism Required by Gropper, Sareen S. Cengage Learning; Edition 6 (1338530400) ISBN: 9781133104056	BYU Bookstore	280.00	210.00

Learning Outcomes

Nutrient Chemical Structure and Metabolism

Demonstrate knowledge of nutrient chemical structures, food sources, digestion, absorption, transport, metabolism and functions, and the metabolic consequences of nutrient deficiencies, interactions, imbalances and toxicities.

Scientific Research and Writing

Demonstrate ability to search, interpret, and summarize original scientific information in an efficiently written scientific paper.

Experimental Design

Demonstrate knowledge of appropriate design for scientific experiments.

Biochemical Functions and Pathways

Understand the biochemical functions and pathways of nutrients in the body.

Nutrient Metabolism and Body Homeostasis

Identify physiological, biochemical and metabolic changes associated with deficient nutrient intake, excessive nutrient intake and selected metabolic diseases.

Grading Scale

Grades	Percent
A	93%
A-	90%
B+	87%
B	83%
B-	80%
C+	77%
C	73%
C-	70%
D+	67%
D	63%
D-	60%
E	0%

Grading Policy

Grades for chapter study guides, quizzes, literature writing prompts, case-study, research paper, midterms and final examination will contribute to a total of 1000 points. More information on each of the individual assignments can be found below. Make-ups will be allowed ONLY for those having a justifiable excuse (my discretion) or who made previous arrangements with me AND have unavoidable circumstances. The only extra credit for this course is completion of the end of course evaluation, which is worth 10 points.

Chapter Reading Guides-There are 13 chapter reading guides, each worth 5 points. These will all be due the first day that we discuss a chapter. Prior to class you should read the chapter and answer the questions on the reading guide. These are due prior to 9am submitted on learning suite. Any assignment submitted after 9am will lose 10% from the total pre-graded score for each 24 hour period (i.e. if you turn in the assignment at 9:30 am, you have lost 10%, if you turn the assignment in at 9:30 am the next day then you have lost 20%). Three to four chapter reading guides will be graded at random from the class for each assignment-if yours is not graded you will receive full points for having it completed and turned in on time.

Quizzes-There will be 12 quizzes given at random throughout the semester, each with 5 points. These quizzes will be on the days assigned chapter. You must be in attendance to take the quiz. If you are not in class when the quiz is given you will not be able to take the quiz. Your lowest 2 quizzes will be dropped.

Class participation-You will earn 50 points through the year from class participation. These points will be earned from my evaluation of your participation and preparedness and your group members assessment. You can lose points by not being in attendance, by leaving class early, by not helping with the discussions, etc.

Literature writing prompt-We will discuss on each Wednesday a recent peer-reviewed primary literature article that is relevant to our current topic. At the end of the in class discussion, you will be given a writing prompt. You should use the article and any other relevant data that you can find from peer-reviewed articles (PubMed) to complete the one page, 12 point font, double spaced prompt (worth 5 points per prompt). These assignments fulfill three purposes-1) you will become comfortable reading the primary biochemical and metabolic literature, 2) it will prepare you for the exam where you will see some of the same figures, and 3) you will improve your ability to write as a scientist.

Case study-You will be required to develop and present a case study to the class during the semester, worth 50 points. The presentation will take no more than 10 minutes. Based around a principle of metabolism for the nutrient you choose, you will develop a story around a scenario. Detailed instructions and examples are provided in a separate document.

Research Paper-You will complete a 4-5 page, 12 point font, double spaced, research paper. This research paper will focus on the biochemistry of nutrients. You must use a minimum of four peer-reviewed primary literature articles to define the question and then propose a study to address the question. No text books, meta-analysis, or reviews can be used as references. Your topic must first be approved by me. The following benchmarks will give you different levels of points: complete a library

assignment with Dr. Nelson (10 points), abstract and reference review (25 points), rough draft for peer review (25 points), peer review (30 points), TA review (15 points), final paper (100 points). Detailed instruction and examples are provided in a separate document.

Exams-There will be four mid-term exams, each worth 100 points. Each will be half multiple choice and half short answer. There will be one extra credit question on each of the four mid-term exams. Exam 1 will cover chapters 1-4, Exam 2 will cover chapters 5-7, Exam 3 will cover chapters 9-10, and Exam 4 will cover chapters 11-14. All exams will be given in the testing center. A comprehensive final examination will be given in the testing center during finals week. If you have an A grade going into the final, you do not need to take the final. You will finish with an A. If your final exam grade is greater than the average of the four midterms, I will set this grade as your exam average grade.

Extra credit-There will be only one form of extra credit. Completion of the end of year evaluation will give you 10 points.

Participation Policy

Participation is expected. We will frequently be working in groups during the semester. Your group will be fixed from the beginning of the semester. Fifty points of your grade will come from class participation. Those points will come from my assessment of your participation and your peers assessment.

Attendance Policy

Attendance is expected. Much of what will be on the examinations will be discussed in class. Group work will occur in class. You will receive points for in class participation. It is in your best interest to be in class. Students that do not attend class more than 75% of the time usually do not earn a grade greater than a C. To help you attend class, twelve quizzes will be given throughout the semester. Your lowest two quizzes will be dropped at the end of the semester, thus allowing you to miss two quizzes without it affecting your grade. If you are absent on a day of a quiz and you have not coordinated with me prior to the

beginning of class, you will not be allowed to take the quiz. Quizzes will be given at any point during the two hour lecture period.

Classroom Procedures

In class schedule

Our classroom procedures will be primarily based around questions that you as students bring to class regarding the reading. We will discuss the key points, and you will be given the opportunity to teach each other. We will be working in groups, and as such you will need to stay with your group for the duration of the semester. In addition, each Monday we will end the lecture/discussion at 10:40 am for a 10 minute case study presentation. There will be exam questions that come from the case studies. On Wednesday, the lecture/discussion on the text will end at 9:50 am. After a 10 minute break, we will begin a discussion of the assigned primary literature paper. This will be the basis of the weeks writing prompt due by Saturday night (turned in on Learning Suite, with the exception of the final prompt, due the last day of classes). Furthermore, questions from these current literature will be present on all exams. Quizzes will be given throughout the semester, at any time during the two hour lecture period.

Questions

If you have questions about grades, points, assignments, due dates, etc. it is in your best interest to contact the TA first. The TA will be able to respond more rapidly, and if it is something that the TA can not deal with, then it will be passed on to me. I will deal with all policy issues. Everything else should go to the TA first.

Consultation

My office hours are Tuesday, Thursday, and Friday from 9:30-10:30am. Please come and visit with me. If you have questions, these are the best times to find me. I will be available to discuss class lecture material, other aspects of the class, or to talk about life! It is better to come early to get clarification or help.

Study Habits

We will cover much information this semester. Here are some things that will help you in your study:

1. **Read and take notes on the text before coming to class**-The purpose of the Chapter reading guide is to try to help you find some of the key points from the reading. It will not cover everything. The best way that I have found to study from this text is to outline the chapter. Focus on the key points-what pathways is the nutrient involved in, where does the nutrient come from, how is the nutrient digested, how is it transported, where is it stored, how is it excreted, why is it necessary, what chemical reactions is it involved in, what is its global function.
2. **Come to class with questions**-It is your responsibility to come with questions so our lecture can focus on things that you do not yet understand. If you do not have questions, that means you completely understand the topic and there is not need for the lecture.
3. **Pay attention to the areas focused on in lecture**-In addition to clarifying concepts where you have questions, lecture periods also let us revisit the most salient points. These will be things that are important for the exam.
4. **Study with a group**-You will be assigned to a group for discussions your first day. You are encouraged to find time to study together out side of class. The best way to learn a concept is to teach it. I encourage you to meet together, and teach each other (don't just read back notes) the concepts that are emphasized in lecture. The students who do the best in this course study as a group one or two times a week.
5. **Put in enough time**-This is a four credit hour class. The rule of thumb is that for every hour spent in class you should spend three hours out of class preparing for the course. Based on that arithmetic, you should spend 12 hours a week preparing for this class. Reading the chapter once will not be sufficient. The most effective methods to learn include out of class preparation

(reading), participation (hearing, speaking, writing, drawing, applying), practice (speaking, writing, drawing, applying), feedback, analysis, iteration and cooperation.

Teaching Philosophy

When I was a student a professor was seen as a "Sage on the stage". I believe that the professor plays a greater role as a "Guide on the side". My philosophy is that I am training scientists. As you graduate with a degree from BYU in the basic sciences, you should be the best example of a scientist. My goal is to help you think critically about all data. Memorization does not make a great scientist. The ability to apply concepts to solve new problems does. I believe that when goals are set high, individuals will stretch to reach those goals. As a graduate student, post-doc and faculty member at other Universities, I observed how in demand BYU graduates were. These graduates were always in the top of the class. They learned to stretch and to do hard things. I believe being a great scientist is within each of your grasps. My goal is for each of you to become that.

Assignments

Assignment Descriptions

Chapter 1

Due: Friday, Sep 05 at 11:59 pm

Nutritional Epigenetics

Due: Saturday, Sep 06 at 11:59 pm

Chapter 2

Due: Monday, Sep 08 at 11:59 pm

Digestive system

Due: Saturday, Sep 13 at 11:59 pm

Chapter 3

Due: Monday, Sep 15 at 11:59 pm

Library Assignment

Due: Wednesday, Sep 17 at 11:59 pm

Library Assignment

carbohydrates

Due: Saturday, Sep 20 at 11:59 pm

Abstract and References due

Due: Wednesday, Sep 24 at 11:59 pm

Abstract and References due

Chapter 4

Due: Wednesday, Sep 24 at 11:59 pm

Exam 1-Chapters 1-4 and associated papers 9/25, 26, 27, 29 in testing center

Due: Thursday, Sep 25 at 12:59 am

Exam 1-Test opens 9/25 in the testing center. Closes 9/29 in the testing center. You should give your self about 2 hours.

Fiber

Due: Saturday, Sep 27 at 11:59 pm

Chapter 5

Due: Monday, Sep 29 at 11:59 pm

Rough draft for peer review

Due: Wednesday, Oct 01 at 11:59 pm

Turn in completed rough draft (1 abstract page, 2 data summary pages, 1 future experiment page, references on page 5). Paper can be between 4 and 5 pages without references.

Lipids

Due: Saturday, Oct 04 at 11:59 pm

Chapter 6

Due: Wednesday, Oct 08 at 11:59 pm

Peer Review of Research Paper

Due: Wednesday, Oct 08 at 11:59 pm

Submit the reviews of your fellow students' Paper 1 drafts to the TA email.

protein

Due: Saturday, Oct 11 at 11:59 pm

Chapter 7

Due: Wednesday, Oct 15 at 11:59 pm

Exam 2-Chapters 5,6,7. 10/16,17,18,20 in testing center.

Due: Thursday, Oct 16 at 12:59 am

Exam 2-Test opens 10/16 in the testing center. Closes 10/20 in the testing center. You should give your self about 2 hours.

Metabolic regulation

Due: Saturday, Oct 18 at 11:59 pm

Chapter 9

Due: Monday, Oct 20 at 11:59 pm

TA review of Research Paper

Due: Wednesday, Oct 22 at 11:59 pm

TA review

Water soluble vitamins

Due: Saturday, Oct 25 at 11:59 pm

Chapter 10

Due: Wednesday, Oct 29 at 11:59 pm

Fat Soluble vitamins

Due: Saturday, Nov 01 at 11:59 pm

Exam 3-Covers Chapters 9 and 10, 11/6,7,8,10 in Testing Center

Due: Thursday, Nov 06 at 10:59 pm

Exam 3-Test opens 11/6 in the testing center. Closes 11/10 in the testing center. You should give yourself about 2 hours.

Antioxidants

Due: Saturday, Nov 08 at 11:59 pm

Chapter 11

Due: Monday, Nov 10 at 11:59 pm

Final Research Paper Due

Due: Wednesday, Nov 12 at 11:59 pm

Research Paper is due-Must have the following parts: 1st page-abstract (1 page), Introduction, discussion of previous data, proposed experiment and experimental design (3-4 pages), references-up to 1 page (only primary literature. No reviews, not meta-analysis, no text books, no websites. Only peer reviewed primary literature). Also include 1-2 pages describing what your peer and TA review suggested you change, and what you did-point by point.

Major minerals

Due: Saturday, Nov 15 at 11:59 pm

Chapter 12

Due: Monday, Nov 17 at 11:59 pm

Electrolytes

Due: Saturday, Nov 22 at 11:59 pm

Chapter 13

Due: Monday, Nov 24 at 11:59 pm

Exam 4-Chapters 11, 12, 13. 12/4, 5, 6, 8 in Testing Center.

Due: Thursday, Dec 04 at 10:59 pm

Exam 4-Test opens 12/4 in the testing center. Closes 12/8 in the testing center. You should give your self about 2 hours.

Essential Trace minerals

Due: Saturday, Dec 06 at 11:59 pm

Case Study

Due: Monday, Dec 08 at 12:00 am

Case Study

Chapter 14

Due: Monday, Dec 08 at 11:59 pm

Pop Quiz 7

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 12

Due: Thursday, Dec 11 at 11:59 pm

Nonessential Trace elements

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 8

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 9

Due: Thursday, Dec 11 at 11:59 pm

Class participation

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 1

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 10

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 3

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 5

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 2

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 4

Due: Thursday, Dec 11 at 11:59 pm

End of year class evaluation

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 11

Due: Thursday, Dec 11 at 11:59 pm

Pop Quiz 6

Due: Thursday, Dec 11 at 11:59 pm

Exam 5-Comprehensive Exam-Given all of finals week in Testing Center

Due: Friday, Dec 19 at 11:59 pm

University Policies

I reserve the right to change this syllabus at any point as I see fit.

At times things change during the semester. I am a scientist, and I will change my methods based on the results. I reserve the right to change the class as I see fit throughout the semester. Please note that my goal is for you to succeed in this course. If I change the course, it is for that goal to be met.

Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Sexual Harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education and pertains to admissions, academic and athletic programs, and university-sponsored activities. Title IX also prohibits sexual harassment of students by university employees, other students, and visitors to campus. If you encounter sexual harassment or gender-based discrimination, please talk to your professor or contact one of the following: the Title IX Coordinator at 801-422-2130; the Honor Code Office at 801-422-2847; the Equal Employment Office at 801-422-5895; or Ethics Point at <http://www.ethicspoint.com>, or 1-888-238-1062 (24-hours).

Student Disability

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

Academic Honesty

The first injunction of the Honor Code is the call to "be honest." Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. "President David O. McKay taught that character is the highest aim of education" (The Aims of a BYU Education, p.6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete

their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

Deliberation Guidelines

To facilitate productive and open discussions about sensitive topics about which there are differing opinions, members of the BYU community should:

- (1) Remember that we are each responsible for enabling a productive, respectful dialogue.
- (2) To enable time for everyone to speak, strive to be concise with your thoughts.
- (3) Respect all speakers by listening actively.
- (4) Treat others with the respect that you would like them to treat you with, regardless of your differences.
- (5) Do not interrupt others.
- (6) Always try to understand what is being said before you respond.
- (7) Ask for clarification instead of making assumptions.
- (8) When countering an idea, or making one initially, demonstrate that you are listening to what is being said by others. Try to validate other positions as you assert your own, which aids in dialogue, versus attack.
- (9) Under no circumstances should an argument continue out of the classroom when someone does not want it to. Extending these conversations beyond class can be productive, but we must agree to do so respectfully, ethically, and with attention to individuals' requests for confidentiality and discretion.
- (10) Remember that exposing yourself to different perspectives helps you to evaluate your own beliefs more clearly and learn new information.
- (11) Remember that just because you do not agree with a person's statements, it does not mean that you cannot get along with that person.
- (12) Speak with your professor privately if you feel that the classroom environment has become hostile, biased, or intimidating.

Adapted from the Deliberation Guidelines published by The Center for Democratic Deliberation.

(<http://cdd.la.psu.edu/education/The%20CDD%20Deliberation%20Guidelines.pdf/view?searchterm=deliberation%20guidelines>)

Devotional Attendance

Brigham Young University's devotional and forum assemblies are an important part of your BYU experience. President Cecil O. Samuelson said, "We have special and enlightening series of devotional and forum assemblies...that will

complement, supplement, and enrich what will also be a very productive period in your classrooms, laboratories, and libraries. We look forward to being with you each Tuesday...and hope that you will regularly attend and bring your friends and associates with you...A large part of what constitutes the unique 'BYU experience' is found in these gatherings where the Spirit has been invited and where we have the opportunity to discuss and consider things of ultimate worth and importance that are not afforded to the academic community on almost any other campus" (from the address "The Legacy of Learning", 30 August, 2005). Your attendance at each forum and devotional is strongly encouraged.

Inappropriate Use Of Course Materials

All course materials (e.g., outlines, handouts, syllabi, exams, quizzes, PowerPoint presentations, lectures, audio and video recordings, etc.) are proprietary. Students are prohibited from posting or selling any such course materials without the express written permission of the professor teaching this course. To do so is a violation of the Brigham Young University Honor Code.

Plagiarism

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor. Inadvertent plagiarism, which may not be a violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education where all members of the university are expected to acknowledge the original intellectual work of others that is included in their own work. In some cases, plagiarism may also involve violations of copyright law. Intentional Plagiarism-Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another as one's own without providing proper attribution to the author through quotation, reference, or footnote. Inadvertent Plagiarism-Inadvertent plagiarism involves the inappropriate, but non-deliberate, use of another's

words, ideas, or data without proper attribution. Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply not being sufficiently careful in research and writing. Although not a violation of the Honor Code, inadvertent plagiarism is a form of academic misconduct for which an instructor can impose appropriate academic sanctions. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance. Examples of plagiarism include: Direct Plagiarism-The verbatim copying of an original source without acknowledging the source. Paraphrased Plagiarism-The paraphrasing, without acknowledgement, of ideas from another that the reader might mistake for the author's own. Plagiarism Mosaic-The borrowing of words, ideas, or data from an original source and blending this original material with one's own without acknowledging the source. Insufficient Acknowledgement-The partial or incomplete attribution of words, ideas, or data from an original source. Plagiarism may occur with respect to unpublished as well as published material. Copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

Respectful Environment

"Sadly, from time to time, we do hear reports of those who are at best insensitive and at worst insulting in their comments to and about others... We hear derogatory and sometimes even defamatory comments about those with different political, athletic, or ethnic views or experiences. Such behavior is completely out of place at BYU, and I enlist the aid of all to monitor carefully and, if necessary, correct any such that might occur here, however inadvertent or unintentional. "I worry particularly about demeaning comments made about the career or major choices of women or men either directly or about members of the BYU community generally. We must remember that personal agency is a fundamental principle and that none of us has the right or option to criticize the lawful choices of another." President Cecil O. Samuelson, Annual University Conference, August 24, 2010 "Occasionally, we ... hear reports that our female faculty feel disrespected, especially by students, for choosing to work at BYU,

even though each one has been approved by the BYU Board of Trustees. Brothers and sisters, these things ought not to be. Not here. Not at a university that shares a constitution with the School of the Prophets." Vice President John S. Tanner, Annual University Conference, August 24, 2010

Schedule

Date	Topic	Reading	Assignments/Test
W - Sep 03	Introduction- Chapter 1-The Cell: A Microcosm of Life	Chapter 1 Pages 2-13: Know the organelles, their functions, their locations in the context of the cell. Have an idea of what cellular processes go on in organelles, and which go on in the cytoplasm. Pages 13-19: Be familiar with the different types of proteins (where they are located, what their functions are) and how proteins are regulated. Pages 21-26: Know the definition and be able to use the terms: free energy, exothermic, endothermic, transition state, activation energy, standard reduction potential. Know how energy is stored, how energy is used, and why reactions are coupled. Pages 29-30: Definitions of nutrigenetics, nutrigenomics, nutritional epigenetics. Reprogramming Paper	

F - Sep 05			Chapter 1
Sa - Sep 06			Nutritional Epigenetics
M - Sep 08	The Digestive System: Mechanism for Nourishing the Body-oral cavity, esophagus, stomach, small intestine, immune protection of GI tract	Ch 2 (pgs. 33-46)	Chapter 2
W - Sep 10	The Digestive System: Mechanism for Nourishing the Body-Accessory Organs, Digestive and Absorptive Process, Colon, Coordination and Regulation of the Digestive Process	Ch 2 (pgs. 46-62)	Topic of paper 1 approved
F - Sep 12			
Sa - Sep 13			Digestive system

M - Sep 15	Add & Drop Deadline Carbohydrates	Ch 3 (pgs. 78-109)	Chapter 3
W - Sep 17	Carbohydrates	Ch 3 (pgs. 63-78)	Library Assignment
F - Sep 19			
Sa - Sep 20			carbohydrates
M - Sep 22	Carbohydrates	Ch 3 (pgs. 63-78)	
W - Sep 24	Fiber	Ch 4 (pgs. 111-136)	Abstract and References due Chapter 4
Th - Sep 25			Exam 1-Chapters 1-4 and associated papers 9/25, 26, 27, 29 in testing center
F - Sep 26			
Sa - Sep 27			Fiber
M - Sep 29	Lipids	Ch 5 (pgs. 137-151)	Chapter 5
W -	Lipids	Ch 5 (pgs. 137-151)	Rough draft for

Oct 01			peer review
F - Oct 03			
Sa - Oct 04			Lipids
M - Oct 06	Lipids	Ch 5 (pgs. 151-173)	
W - Oct 08	Protein	Ch 6 (pgs. 183-207)	Peer Review of Research Paper Chapter 6
F - Oct 10			
Sa - Oct 11			protein
M - Oct 13	Protein	Ch 6 (pgs. 183-207)	
W - Oct 15	Protein/Integration and Regulation of Metabolism	Ch 6 (pgs. 207-226)	Chapter 7
Th - Oct 16			Exam 2-Chapters 5,6,7. 10/16,17,18,20 in testing center.
F - Oct 17			

Sa - Oct 18			Metabolic regulation
M - Oct 20	Water-Soluble Vitamins	Ch 9 (pgs. 344-369)	Chapter 9
W - Oct 22	Water-Soluble Vitamins	Ch 9 (pgs. 325-344)	TA review of Research Paper
F - Oct 24			
Sa - Oct 25			Water soluble vitamins
M - Oct 27	Water-Soluble Vitamins	Ch 9 (pgs. 307-325)	
W - Oct 29	Fat-Soluble Vitamins	Ch 10 (pgs. 371-390) Ch 5 (pgs. 137-151)	Chapter 10
F - Oct 31			
Sa - Nov 01			Fat Soluble vitamins
M - Nov 03	Fat-Soluble Vitamins	Ch 10 (pgs. 390-415)	
W - Nov 05	Fat-Soluble Vitamins	Ch 10 (pgs. 390-415)	

Th - Nov 06			Exam 3-Covers Chapters 9 and 10, 11/6,7,8,10 in Testing Center
F - Nov 07			
M - Nov 10	Major Minerals Withdraw Deadline	Ch 11 (pgs 438-454)	Chapter 11
W - Nov 12	Major Minerals	Ch 11 (pgs 425-438)	Final Research Paper Due
F - Nov 14			
M - Nov 17	Water and Electrolytes	Ch 12 (pgs. 455-480)	Chapter 12
W - Nov 19	Water and Electrolytes	Ch 12 (pgs. 455-480)	
F - Nov 21			
M - Nov 24	Essential Trace and Ultratrace Minerals	Ch 13 (pgs. 481-500)	Chapter 13
T - Nov 25	Friday Instruction		
W - Nov	No Classes		

26			
Th - Nov 27	Thanksgiving Holiday		
F - Nov 28	Thanksgiving Holiday		
M - Dec 01	Essential Trace and Ultratrace Minerals	Ch 13 (pgs. 500-519)	
W - Dec 03	Essential Trace and Ultratrace Minerals	Ch 13 (pgs. 519-546)	
Th - Dec 04			Exam 4-Chapters 11, 12, 13. 12/4, 5, 6, 8 in Testing Center.
F - Dec 05			
M - Dec 08	Nonessential Trace and Ultratrace Minerals	Ch 14 (pgs 547-561)	Case Study Chapter 14
W - Dec 10	Nonessential Trace and Ultratrace Minerals	Ch 14 (pgs 547-561)	
	Last Day of Class		
Th - Dec 11	Class participation		End of year class evaluation Nonessential Trace elements Pop Quiz 1 Pop Quiz 10

		Pop Quiz 11 Pop Quiz 12 Pop Quiz 2 Pop Quiz 3 Pop Quiz 4 Pop Quiz 5 Pop Quiz 6 Pop Quiz 7 Pop Quiz 8 Pop Quiz 9
W - Dec 17		
F - Dec 19		Exam 5- Comprehensive Exam-Given all of finals week in Testing Center