HBIO 350 – Nutrition and Homeostasis (4 units)
Spring 2017
Lectures-Discussions:
Monday/Wednesday/Friday; 11:00am-11:50 am
Location: VKC 206

Instructor: Gioia Polidori Francisco, PhD
Office: AHF 253
Office Hours: Mon/Fri 2-4pm

Contact Info
email: gpolidor@usc.edu
telephone: 213.740.3337

Course Description
Theories and principles of regulation of vitamin/mineral metabolism as it relates to homeostasis of organ systems as well as the effects of acute and chronic exercise. Prerequisite: HBIO 302L

Learning Objectives
• To develop a deeper understanding of the role of micronutrients in determining homeostasis of organ systems with a cross-disciplinary approach that includes aspects of human nutrition, anatomy, physiology and pathology.
• To develop the ability to think critically, analyze, synthesize, and use information to solve problems, case studies and develop student-driven projects that solidify their understanding of the scientific method, and basic scientific principle.
• To place biological, nutritional and physiological knowledge into an applicable and ethical context, especially how biology, physiology and nutrition can contribute to the resolution of ethical, social and environmental issues.
• To provide sufficient depth of knowledge and skill for entry-level employment in a wide variety of fields or for graduate study in the health professions or other biology-related disciplines.
Prerequisite(s): HBIO 302L

I. Required Readings


II. Description and Assessment of Assignments

- Class material will be evaluated via quizzes and exams.
- Material covered in discussion sessions will be evaluated via individual and group presentations, discussions and exams.
- **Discussions** will evaluate research findings presented in relevant research paper related to that week’s lectures. Students will receive credit for their contribution to the discussion.
- **Case Studies** will allow students to consolidate the knowledge acquired during lectures and apply critical thinking to the resolution of real-world problems.
- **Debates** will focus on topics under discussion (i.e. use of supplements or choice of frozen food). Students will explain and defend their position.
- **Quizzes** will be given during lectures and will be based on the material discussed.

III. Grading Breakdown

<table>
<thead>
<tr>
<th>Assignment</th>
<th>% of Grade</th>
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<tbody>
<tr>
<td>Midterm 1</td>
<td>25</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>25</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30</td>
</tr>
<tr>
<td>Discussions/Debates</td>
<td>15</td>
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<tr>
<td>Quizzes</td>
<td>5</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>100</td>
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</table>

JEP (Extra Credit) 2.5

IV. Grading Scale

- The grading scale is based on the traditional scale as follows:

  - A (≥93%)
  - A- (≥90%)
  - B+ (≥87%)
  - B (≥83%)
  - B- (≥80%)
  - C+ (≥77%)
  - C (≥73%)
  - C- (≥70%)
  - D+ (≥67%)
  - D (≥63%)
  - D- (≥60%)
  - F (≤59.9%)
V. Additional Policies

- A midterm exam can be taken after the specified date **ONLY** if the student has a **documented** medical excuse.

- A request to take a make-up exam must be accompanied by evidence of necessity (ie: letter from a doctor, plane ticket to a game from an athlete) and must be made before the date of the scheduled exam. Make-up exams will be different from the scheduled exam and may be proctored by personnel who do not have extensive knowledge in the area being tested.

- Exams and presentations will not be given a letter grade. Only the final grade will be given a letter grade.

- Lecture slides will be posted on blackboard, however, please do not rely entirely on slides, these are meant as a starting point for note-taking. Class notes and textbook information will form the basis of the material that will be on the exams. If you attend class regularly, you will be updated on the status of lecture notes and course material/announcements.

- Up to 2 lectures/quizzes can be excused without the need for a written excuse letter, however, a request to be excused from taking a lecture quiz must be made before the lecture.

- Late Work Policy: No late work will be accepted unless the student receives written prior approval from the course instructor. Students should contact the course instructor via email with a request for late work.

- The **only** extra credit offered for this course is JEP. JEP is the oldest and largest university service-learning program in the country. It offers students the unique opportunity to combine academic coursework with experiences in the community surrounding the campus. At the beginning of the semester, a JEP representative will visit our class and tell you more about the opportunities available that semester. To register for JEP, visit [http://dornsife.usc.edu/joint-educational-project/](http://dornsife.usc.edu/joint-educational-project/).
## VI. Tentative Lecture Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Thompson (Chapters)</th>
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</thead>
<tbody>
<tr>
<td>Jan 9</td>
<td>What is a Micronutrient?</td>
<td>7.5</td>
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<tr>
<td>Jan 11</td>
<td>Metabolism Review</td>
<td>7</td>
</tr>
<tr>
<td>Jan 13</td>
<td>Introduction to Lit Searches</td>
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<tr>
<td>Jan 16</td>
<td><em>Martin Luther King’s Birthday</em></td>
<td></td>
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<tr>
<td>Jan 18</td>
<td>Metabolism</td>
<td></td>
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<tr>
<td>Jan 20</td>
<td>Case Study on Thiamin</td>
<td>8</td>
</tr>
<tr>
<td>Jan 23</td>
<td>Riboflavin and Niacin</td>
<td>8</td>
</tr>
<tr>
<td>Jan 25</td>
<td>Biotin, Pantothenic Acid</td>
<td>8</td>
</tr>
<tr>
<td>Jan 27</td>
<td>Cobalmine</td>
<td>8</td>
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<tr>
<td>Jan 30</td>
<td>Pyridoxine</td>
<td>8</td>
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<tr>
<td>Feb 1</td>
<td>Folate</td>
<td>8</td>
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<tr>
<td>Feb 3</td>
<td>Case Study on Folate</td>
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<tr>
<td>Feb 6</td>
<td>Electrolytes</td>
<td>Overview</td>
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<tr>
<td>Feb 8</td>
<td>Sodium, Potassium &amp; Chloride</td>
<td>9</td>
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<tr>
<td>Feb 10</td>
<td>Case Study on Hyponatremia</td>
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<tr>
<td>Feb 13</td>
<td>Review</td>
<td></td>
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<tr>
<td>Feb 15</td>
<td><strong>MIDTERM I</strong></td>
<td></td>
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<tr>
<td>Feb 17</td>
<td>Antioxidants &amp; Chronic Diseases I</td>
<td>10</td>
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<tr>
<td>Feb 20</td>
<td><strong>Presidents’ day</strong></td>
<td></td>
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<tr>
<td>Feb 22</td>
<td>Antioxidants &amp; Chronic Diseases II</td>
<td></td>
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<tr>
<td>Feb 24</td>
<td>Vitamin A &amp; C</td>
<td>10</td>
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<tr>
<td>Feb 27</td>
<td>Vitamin E &amp; Selenium</td>
<td>10</td>
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<tr>
<td>Mar 1</td>
<td>Discussion on Vitamin A &amp; Cancer</td>
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<tr>
<td>Mar 3</td>
<td>Bone Metabolism &amp; Vitamin D</td>
<td>11</td>
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<tr>
<td>Mar 5</td>
<td>Calcium</td>
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<tr>
<td>Mar 7</td>
<td>Phosphorus, Magnesium &amp; Fluoride</td>
<td>11</td>
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<tr>
<td>Mar 10</td>
<td>Discussion on Obesity and BMD</td>
<td>11</td>
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<tr>
<td>Mar 12-19</td>
<td><strong>Spring Recess</strong></td>
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<tr>
<td>Mar 20</td>
<td>Debate I</td>
<td></td>
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<tr>
<td>Mar 22</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td>Mar 24</td>
<td><strong>MIDTERM II</strong></td>
<td></td>
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<tr>
<td>Mar 27</td>
<td>Iodine</td>
<td>12</td>
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<tr>
<td>Mar 29</td>
<td>Case Study on Iodine</td>
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<td>Mar 31</td>
<td>Formed Elements of Blood I</td>
<td>12</td>
</tr>
<tr>
<td>Apr 3</td>
<td>Formed Elements of Blood II</td>
<td>12</td>
</tr>
<tr>
<td>Apr 5</td>
<td>Anemia</td>
<td>12</td>
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<tr>
<td>Apr 7</td>
<td>Micronutrients and RBC production</td>
<td>12</td>
</tr>
<tr>
<td>Apr 10</td>
<td>Case Study on Hemochromatosis</td>
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<tr>
<td>Apr 12</td>
<td>Micronutrients and Immunity I</td>
<td>12</td>
</tr>
<tr>
<td>Apr 14</td>
<td>Micronutrients and Immunity II</td>
<td>12</td>
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VI. Support Systems
A number of USC’s schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the American Language Institute http://dornsife.usc.edu.ali, which sponsors courses and workshops specifically for international graduate students. The Office of Disability Services and Programs http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, USC Emergency Information http://emergency.usc.edu/ will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

VII. Academic Conduct
Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Section 11, Behavior Violating University Standards https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct/.

VIII. Academic Integrity Violations
Students who violate University standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the University. Since dishonesty in any form harms the individual, other students and the University, academic integrity policies will be strictly enforced.

IX. Disruptive and Threatening Behavior
Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the Office of
Equity and Diversity [http://equity.usc.edu/](http://equity.usc.edu/) or to the Department of Public Safety [http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us](http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us). This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The Center for Women and Men [http://www.usc.edu/student-affairs/cwm/](http://www.usc.edu/student-affairs/cwm/) provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.