



ORIGINAL COURSE IMPLEMENTATION DATE: September 2009
 REVISED COURSE IMPLEMENTATION DATE: September 2018
 COURSE TO BE REVIEWED: (six years after UEC approval) March 2024
Course outline form version: 09/15/14

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: KIN 461	Number of Credits: 3 Course credit policy (105)																
Course Full Title: Vitamins and Minerals: Applications to Sport and Disease Course Short Title (if title exceeds 30 characters): Vitamins and Minerals																	
Faculty: Faculty of Health Sciences	Department (or program if no department): Kinesiology																
Calendar Description: Covers fundamental concepts related to vitamin and mineral metabolism and their application to practical situations, such as eating for sport and physical activity, and the prevention, management, and treatment of disease. Phytochemicals and nutritional supplements are also discussed. Note: Students with credit for KPE 461 cannot take this course for further credit.																	
Prerequisites (or NONE):	KIN 260 (formerly KPE 260). Note: One of BIO 201 or KIN 270 (formerly KPE 270) recommended.																
Corequisites (if applicable, or NONE):	NONE																
Pre/corequisites (if applicable, or NONE):	NONE																
Equivalent Courses (cannot be taken for additional credit) Former course code/number: KPE 461 Cross-listed with: Equivalent course(s): KPE 461 <i>Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.</i>	Transfer Credit Transfer credit already exists: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Transfer credit requested (OReg to submit to BCCAT): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (if yes, fill in transfer credit form) Resubmit revised outline for articulation: <input type="checkbox"/> Yes <input type="checkbox"/> No To find out how this course transfers, see bctransferguide.ca .																
Total Hours: 45 Typical structure of instructional hours: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr><td>Lecture hours</td><td style="text-align: right;">30</td></tr> <tr><td>Seminars/tutorials/workshops</td><td style="text-align: right;">15</td></tr> <tr><td>Laboratory hours</td><td></td></tr> <tr><td>Field experience hours</td><td></td></tr> <tr><td>Experiential (practicum, internship, etc.)</td><td></td></tr> <tr><td>Online learning activities</td><td></td></tr> <tr><td>Other contact hours:</td><td></td></tr> <tr><td style="text-align: right;">Total</td><td style="text-align: right;">45</td></tr> </table>	Lecture hours	30	Seminars/tutorials/workshops	15	Laboratory hours		Field experience hours		Experiential (practicum, internship, etc.)		Online learning activities		Other contact hours:		Total	45	Special Topics Will the course be offered with different topics? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, different lettered courses may be taken for credit: <input type="checkbox"/> No <input type="checkbox"/> Yes, repeat(s) <input type="checkbox"/> Yes, no limit <i>Note: The specific topic will be recorded when offered.</i>
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Online learning activities																	
Other contact hours:																	
Total	45																
Maximum enrolment (for information only): 36 Expected frequency of course offerings (every semester, annually, every other year, etc.): every other year																	
Department / Program Head or Director: Alastair Hodges	Date approved: October 2017																
Faculty Council approval	Date approved: October 2017																
Campus-Wide Consultation (CWC)	Date of posting: November 24, 2017																
Dean/Associate VP: Joanne MacLean	Date approved: October 2017																
Undergraduate Education Committee (UEC) approval	Date of meeting: March 23, 2018																

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Explain the concept of bioavailability, and how various factors affect the absorption, and utilization of vitamins and minerals.
2. Explain the major functions and metabolic pathways for select vitamins and minerals.
3. Describe the pathogenesis of some of the major chronic diseases, and explain the role of micronutrients in their prevention and treatment.
4. Describe some of the effects of inadequate and excessive intakes of micronutrients on health and athletic performance.
5. Interpret dietary records and analyses and make suggestions for improvement for increasing athletic performance and decreasing risk of chronic disease.
6. Explain the importance of adequate hydration and factors influencing fluid and electrolyte balance in sport and disease.
7. Describe regulations governing the sale of nutritional supplements in North America.
8. Describe the effects of some nutritional supplements on athletic performance and disease.
9. Explain the major antioxidant systems in the body and the relationship between antioxidants and disease and athletic performance.

Prior Learning Assessment and Recognition (PLAR)

Yes No, PLAR cannot be awarded for this course because

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

Lectures, discussion of readings, case studies

Grading system: Letter Grades: Credit/No Credit: Labs to be scheduled independent of lecture hours: Yes No

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (if more space is required, download Supplemental Texts and Resource Materials form)

Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1. Gropper, S. & Smith, J.L.	Advanced Nutrition and Human Metabolism	<input checked="" type="checkbox"/>	Cengage Learning	2013
2. Shils, M.E., et.al. (eds)	Modern Nutrition in Health and Disease	<input checked="" type="checkbox"/>	Wolters Kluwer	2006
3. Burke, L.	Practical Sports Nutrition	<input checked="" type="checkbox"/>	Human Kinetics	2007
4. Maughan, R.J.	Sports Nutrition	<input checked="" type="checkbox"/>	Wiley and Sons	2014
5. Lanham-New, S. (ed)	Sport and Exercise Nutrition	<input checked="" type="checkbox"/>	Wiley-Blackwell	2011
6.	Library reserve readings, readings posted to the online supplemental (Blackboard) site	<input type="checkbox"/>		

Required Additional Supplies and Materials (software, hardware, tools, specialized clothing, etc.)**Typical Evaluation Methods and Weighting**

Final exam:	40%	Assignments:	%	Midterm exam:	30%	Practicum:	%
Quizzes/tests:	%	Lab work:	%	Field experience:	%	Shop work:	%
Essay:	25%	Debate:	5%	Other:	%	Total:	100%

Details (if necessary):

Typical Course Content and Topics**Introduction**

- micronutrients and phytochemicals
- review of DRIs

Micronutrient bioavailability

- definition
- factors affecting bioavailability

Supplements and food fortification

- regulations and policies
- uses and abuses in sport and disease

Antioxidants

- oxidative damage and antioxidant defenses – vitamins C and E, Fe, Zn, Cu and Se
- antioxidant phytochemicals – superfoods (berries, chocolate)

Vitamin E

- basic biology
- application to disease – antioxidants and CVD
- application to sport – antioxidants and athletic performance

Vitamin D and calcium (Ca)

- vitamin D and Ca – basic biology
- application to disease – osteoporosis
- application to sport – female athlete triad
- DRIs for vitamin D – why were they revised?
- Application to disease – cancer

B vitamins

- Folate – basic biology
 - Application to disease – neural tube defects, CVD
 - Folate fortification – pros and cons
- B₁₂ – basic biology
 - Application to disease – dementia, NTDs, CVD
 - B₁₂ fortification – pros and cons
- B vitamins and athletic performance

Iron (Fe) (and maybe zinc)

- Basic biology
- Fe as a pro-oxidant
- Application to disease – hemochromatosis
- Application to sport – athletes and Fe supplements

Sodium (Na) and Potassium (K) – time permitting

- Basic biology of electrolytes
- Application to disease – hypertension
- Application to sport – fluid balance/hydration issues in athletes