

University of British Columbia  
Faculty of Land and Food Systems  
Food Nutrition and Health  
**FNH 472: Maternal and Fetal Nutrition**  
2018W Term 1 (September-December 2018)

**Instructor:** Dr. Rajavel Elango  
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**Seminar Time:** Tuesdays and Thursdays (8 – 9:30AM)  
**Location:** Rm40, FNH UBC

**Course Description:** “A child’s future nutrition status is affected before conception and is greatly dependent on the mother’s nutrition status prior to and during pregnancy”(UNICEF 2009). This course will outline nutrition during pregnancy, with a focus on metabolic adaptations, macro-and micronutrient metabolism, and special issues during pregnancy that may influence the maternal-fetal nutritional supply. The course primarily uses current/relevant research literature, and is designed for students to read, critique, analyze and discuss research papers on maternal-fetal nutrition.

**Learning Objectives:**

Upon completion of this course you will be able to:

1. Describe the importance of nutrition in the maternal-fetal relationship
2. Describe the physiologic, metabolic adaptation which occur post-conception, and during pregnancy to allow adequate nutritional supply to fetus
3. Describe the key micro-nutrients involved during pregnancy, and potential effects of their deficiency in the maternal diet on fetal health
4. Identify special conditions during pregnancy and how they affect nutrient metabolism and requirements
5. **Discuss** journal articles related to nutrition during pregnancy in a critical and analytical manner
6. Provide weekly reports (using format provided) on ‘required readings’
7. **Write** a critical review of a journal article on nutrition during pregnancy

**Course Format:** Lecture followed by *class discussion* on required readings (research articles)

**Course Evaluation:**

Mid-Term quiz	: 25%
Weekly journal reviews (8)	: 20%
Journal article review assignment	: 15%
Final quiz	: 30%
Attendance/participation:	: 10%

**Course Outline:**

<b>Date</b>	<b>Topic</b>	<b>Required Readings</b>
Week 1 Sept 4,6	Sept 4: <b>Imagine Day – No Class</b> Sept 6: <b>No Class</b>	2-3 journal articles per week chosen based on topic
Week 2 Sept 11,13	Introduction to course, objectives, expectations; Nutrition as the basis of human life; Endocrinology and physiology of pregnancy	
Week 3 Sept 18,20	Maternal adaptations to pregnancy – role of the placenta	Journal Review 1 Effect of early maternal iron stores on placental weight and structure. Lancet 2000; 26;356(9231):719-23. Maternal circulating nutrient concentrations in pregnancy: implications for birth and placental weights of term infants. Am J Clin Nutr 2004;79:103–10.
Week 4 Sept 25,27	Pregnancy weight gain – impact on fetal growth and outcomes	Journal Review 2 Readings to be posted
Week 5 Oct 2,4	Metabolic adaptations during pregnancy – energy and protein	Journal Review 3 Readings to be posted
Week 6 Oct 9,11	Metabolic adaptations during pregnancy – carbohydrates and fats	Journal Review 4 Readings to be posted
Week 7 Oct 16,18	Oct 16: Optional Midterm Review Class by Madeleine Oct 18: <b>Midterm Quiz</b>	No Readings
Week 8 Oct 23,25	Micronutrients during pregnancy; hyperemesis, vegetarian/vegan diets	Journal Review 5 Readings to be posted
Week 9 Oct 30, Nov 1	Oct 30: <b>Guest Lecture, Dr. Crystal Karakochuk</b> on Special issues during pregnancy – anemia Nov 1st: <b>Assignment due</b>	No journal readings
Week 10 Nov 6, 8	Metabolic issues during pregnancy – diabetes, preeclampsia	Journal Review 6 Readings to be posted by <b>Madeleine Ennis</b> , will present on the 6 <sup>th</sup> and 8 <sup>th</sup> .
Week 11 Nov 13,15	Special issues during pregnancy – adolescent pregnancy, twin/multiple births, Obesity and pregnancy	Journal Review 7 Readings to be posted
Week 12 Nov 20,22	Under-nutrition & pregnancy and Policies to impact maternal nutrition	Journal Review 8 Readings to be posted
Week 13 Nov 27,29	Nov 27: Topic TBD Nov 29: Optional Final Review Class by Madeleine	No journal readings

**Course Readings:**

Class lecture notes and required journal article readings will be posted on CANVAS before classes (normally a week before).

**Class Activities:**

- Weekly journal articles review (A format will be available in class)
- Midterm: The quiz (80 min) will consist of multiple choice questions, true or false questions and short answer questions
- Assignment
- Final: The quiz (80 min) will consist of multiple choice questions, true or false questions and short answer questions

**Attendance/participation:**

Due to the participatory learning style used in this class, attendance is important. For days where there are class discussions (Thursdays), with the exception of missing one class (please e-mail the TA in that case prior to class), a doctor’s note is needed for marks not to be deducted.

**Additional Resources:**

Maternal-Fetal Nutrition during Pregnancy and Lactation Eds: Symonds ME & Ramsay MM, Cambridge University Press 2010

Maternal, Fetal & Neonatal Physiology – A Clinical Perspective. 3<sup>rd</sup> Edition. Susan T Blackburn, Saunders Elsevier, St. Louis. MO 2007.

Prenatal Nutrition Guidelines, Health Canada, 2009

Institute of Medicine, Food and Nutrition Board, “Dietary Reference Intakes: energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein and amino acids.” Washington, DC: The National Academy Press, 2005

Institute of Medicine (Committee to reexamine IOM Pregnancy Weight Guidelines), Food and Nutrition Board, and Board on Children, Youth, and Families). Weight gain during pregnancy: reexamining the guidelines, Washington DC: National Academy Press, 2009.

**Academic Integrity:**

The following information is from the UBC webpage Citing Sources and Avoiding Plagiarism: Plagiarism is using someone else's thoughts or publications, and presenting them as one's own, without citing the source. Many university students are not aware of what constitutes plagiarism, but it is considered a serious academic offence. UBC describes plagiarism as an act of academic misconduct subject to discipline(<http://help.library.ubc.ca/planning-your-research/academic-integrity-plagiarism/> ). Penalties can range from giving a failing grade to suspension from the university, depending on the severity of the plagiarism. Many resources are available at UBC to help you avoid plagiarism. For more information, visit: <http://help.library.ubc.ca/planning-your-research/academic-integrity-plagiarism/>