

GEORGE MASON UNIVERSITY
College of Health and Human Services

Course Title: GCH 530, Nutrition: A global perspective

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Office Hours: Tuesdays: 2.00-4.00pm; Thursdays: 10 am-12.00 noon

Class Time: Thursdays: 4:30 pm – 7:10 pm
Krug Hall Room 242

Fridays: 4:30 pm – 7:10 pm
Robinson A Room A249

Placement in Curriculum: Requirement for International Health Major, Masters in Public Health, Graduate Nutrition Certificate Program or Elective in Undergraduate Nutrition Certificate Program

Catalogue Description: Directed at students from a variety of disciplines, this course examines what malnutrition is and how it occurs by looking at several situations from around the world. It looks at the impact of nutrition on a society and community and examines the benefits of a well-nourished population.

Course Objectives:

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

- Discuss the major nutritional problems around the world.
- Compare the nutritional situation of various populations and cultures.
- Identify symptoms and causes of macro and micronutrient deficiencies.
- Examine the global impact of overnutrition.
- Determine appropriate methods of nutritional assessment in a global setting.
- Discuss cultural and environmental factors related to malnutrition and look at specific case studies.
- Identify and critique multilateral, governmental, and non-governmental based nutrition intervention programs.
- Describe cultural perspectives related to diet, food, and body image.

Rationale: To provide a program requirement for the nutrition certificate program and as an elective for the international health certificate. The course proposes to investigate the diversity, the causes, and the social and cultural implications of nutritional issues across the globe.

Teaching Strategies: Readings, Web assignments, Annotated bibliography, Guest Speakers, Journal, Research Paper, In-Class presentations and discussions

Recommended Reference:

Nutrition and Health in Developing Countries. Semba RD & Bloem MW (eds.), Humana Press Inc., Totowa, NJ

Understanding Normal and Clinical Nutrition (from GCH 295), Whitney, Caltaldo, and Rolfes.

Grades: Grades will be based on assignments, class presentations and discussions, a research paper on a topic of your choice, final presentation of your findings and end-of-term exam.

Classroom topic/article presentations	10 points
International Dish/Presentation	10 points
Micronutrient research	20 points
Journal of Notes from Readings	20 points
Research Paper-related assignments:	
General Global Nutrition Research	5 points
Research paper: community and problem description	30 points
Annotated Bibliography	30 points
Research paper: Consequences	20 points
Research paper: Strategies and evaluation	20 points
Research paper: Final presentation	10 points
Research paper: Final write-up	10 points
Midterm exam	40 points
End-of-term exam	40 points
<u>Total points</u>	<u>265 points</u>

Final grades will be based on the GMU collegial grading scale (%):

- A: 94-100
- A-: 90-93
- B+: 87-89
- B: 83-86
- B-: 80-82
- C+: 77-79
- C: 73-76
- C-: 70-72
- D: 60-69
- F: 0-59

Readings:

Your readings will come from articles placed on e-reserve or handed out in class. The reading assignments are listed in the topical outline.

Journal readings: (20 points) You are expected to keep a journal of notes from your readings in the class. You can keep this in a loose-leaf folder or binder. For the journal, choose two articles from those assigned on each week, summarize in one or two paragraphs the major points of the readings and a few additional remarks about what you learned.

The journal should include the following:

One page for each class that includes:

- a. Date.
- b. Title of reading.
- c. One or two paragraph summary of reading and a few sentences regarding your summary, critique, or evaluation.

This will be picked up at the in the middle of the semester (**Due October 15th**) and end of the semester for a grade. (**Due December 3rd**).

Classroom presentation and discussion (10 points)

Option I: journal article

Each week 1 or 2 members of the class will present and discuss on one of the assigned readings: research questions/objectives, population and methodology, results, discussion, conclusion, strengths and limitations, your view

Option II: topic/program

Each week 1 or 2 members of the class will make a presentation on the week's topic. These presentations help provide information on work being done or already done within the areas of interest and may include: personal experience, intervention programs, campaigns, etc.

International dish Assignment (10 points)

For this assignment you will be asked to research the weaning foods most commonly found within a specific ethnic group/nationality/culture. Research your text, the web, and the library to find the dish. First, chose a specific ethnic or cultural group, then find a recipe and prepare a dish from that ethnic or cultural group and share it with your classmates. The goal of this assignment is to get an understanding the kinds of nutrients that are most commonly consumed by a specific ethnic or cultural group. Also it aims to allow you to taste and experience a bit of their culture through their food.

Once you chose the ethnic or cultural group and find a recipe answer the following questions: (Type this up in a one page summary and be prepared to read it in class.)

1. Which ethnic or cultural group did you choose? Why? Briefly describe this group. (Such as where do they live? How?)

2. What is the main diet (or staple) of this particular group?
3. Are there any nutritional problems linked with this group? Are there specific problems within different age groups or people within different life stages (young children, school age children, adolescents, adult males/females, pregnancy and lactation, elderly, etc)? Briefly explain.
4. Based on your assessment of the list of ingredients, do you think this diet meets the basic nutritional needs for the target group? Why or why not?
5. Is there any social significance of the dish

You may want to try these websites to help you find recipes:

<http://www.foodtv.com/>

<http://marilee.us/intrntlfoods.html>

http://www.dmoz.org/Home/Cooking/For_Children/Baby_Food/

http://www.indiaparenting.com/diet/data/diet16_00.shtml

<http://www.wholesomebabyfood.com/>

<http://www.shieldandspear.com.au/bathiesafricanrecipes.html>

For this you may also want to check out the book:

“The Anthropologists’ Cookbook” Edited by Jessica Kuper, 1997, Columbia University Press.

Micronutrient Research (20 points):

Part I: Pick a micronutrient and find a website(s) that provide(s) the answers to the following questions: (answer the questions too!)

- a. What is the function of the micronutrient?
- b. What are food sources of the micronutrient?
- c. What are deficiency symptoms of the micronutrient?
- d. What are toxicity symptoms of the micronutrient?
- e. What populations in the world are at risk from a deficiency of the micronutrient?

Part II: Pick a specific country and do a web search to find at least 3 different nutrition intervention programs. Write a one-paragraph synopsis of what you found on each of the interventions (one paragraph per intervention).

- a. Name the organization that sponsors the program
- b. discuss the kinds of activities that are involved.
- c. Is there any information regarding the effectiveness of the program?
- d. What are your views on the program’s effectiveness, irrespective of whether any information has been provided?
- e. What do you think about the program? Think about the cost involved, the effectiveness, cultural relativity.
- f. What are your suggestions on improving program delivery and effectiveness?

Research Paper:

Select a major nutrition problem of public health in a community known to you, either personally or from the literature. The community may be anywhere in the world, but preferably an underserved community. This paper will be based on literature review and application of knowledge learnt in class. Citations should be consistent with requirements from your discipline. (Ex; APA for Psychology).

The following assignments will help focus your research paper

General Global Nutrition Research (5 points):

This assignment is intended to help you come up with a research question for your annotated bibliography and your paper. Think about a topic related to global nutrition. Read over the topical outline of the syllabus to get some ideas. Choose a topic that relates to your interests. Then try to come up with some specific keywords to do a search on that topic. Use those keywords from that topic and search the web. See if you can find any research related to that topic. Here are some examples of topics and keywords:

1. vitamin A deficiency in developing countries (keywords: vitamin A deficiency, blindness, micronutrient deficiencies, Vitamin A)
2. obesity and poverty (keywords: obesity and poverty, obesity in developing countries, overweight, fat, poor)

Once you have chosen your topic, respond to the following questions:

- f. What is your topic?
- g. What keywords did you use?
- h. What kind of search engine did you use?
- i. Did you find several sites or only a few?
- j. Did these sites contain any kind of research on the topic?
- k. Give me the website addresses to at least 2 sites that you found interesting.

Research paper: community and problem description (30 points)

This assignment should take 2-3 pages, double spaced, 12 point font.

- Describe the community
- Describe the context of the problem.
- Define or analyze the problem(s) in terms of the causal factors or determinants in the specific population and target group (mothers, underfives, schoolchildren, seniors). The Community Nutrition Level Equation should serve as a framework

Annotated Bibliography (30 points):

For this assignment you first need to focus on your final research paper interests. Your first web assignment will help you in coming up with a topic. The annotated bibliography is intended to assist you in writing your final research paper. The hope will be that you will use the citations found in the annotated bibliography for your research paper. The annotated bibliography is analogous to doing a literature review when doing research. However, for this project you only need to find a minimum of 10 scholarly, articles so please remember that it is in no way a comprehensive review of the literature. At least 5 articles MUST come from peer-reviewed research journal. If you do not know what a peer-reviewed journal is or scholarly journal, you will meet with the librarian, Sarah Sheehan, who can help you.

To determine your research topic, you need to come up with a question first. Here are some examples from former classes:

1. What is the prevalence of iodine deficiency in China? What kinds of programs are occurring to alleviate the problem?
2. What is the prevalence of anemia in Central America? What are its causes?
3. How has the transition from traditional beer consumption to the consumption of mass produced beer changed the nutritional status of individuals in South Africa?
4. What are the major nutritional problems found in Nepal?
5. What do Nicaraguan adolescent girls eat? What is their nutritional knowledge? (Primary data collection.)
6. What is the prevalence of vitamin A/zinc deficiency among school children in Zambia? What kinds of programs are occurring to alleviate the problem?
7. Improving food and nutrition security among HIV/AIDS affected households in Uganda.
8. Overweight/obesity related problems among immigrant communities in the US

- Obtain a minimum of 10 scholarly articles on a particular topic and write an annotated citation for each (see below example). Five of them must come from peer reviewed journals. The goal is to find specific articles related to your research project. However, as you will discover, in international nutrition, many references specific to your question are hard to find, in another language, or have not been published. Therefore, try to find as many specific references as you can. However, some of the references may have to be broad and general, but they will aid you understanding the background about a particular topic and let you determine specific questions that people are addressing in current research. You may also use the references from general articles to track down specific studies you want to explore.
- What are appropriate articles? The journals should be scholarly articles, of which three must be peer-reviewed. Try to find peer-reviewed articles (i.e. articles approved by professional in academia).
 - Some articles contain primary research data.
 - Some of these articles are review articles, or meta-analyses. These kinds of articles summarize the research that has been done on a particular topic or issue. Review articles are good because they provide overviews. The drawback is that they often lack the details of the specific studies because they are secondary sources. Primary articles are articles that present original research.
 - You may cite chapters from books, but search for journal articles first, because they are more current. Many book chapters are often not peer-reviewed.
 - You may cite government reports.
 - You may NOT cite a website for the annotated bibliography, unless that website contains a scholarly article.

- If you find a magazine article or newspaper article, these are generally NOT considered scholarly articles, so run them by me first.
- Write an annotated citation for each article. An annotation is similar to an article abstract. It discusses the purpose and/or hypothesis of the article, the methods used to test the hypothesis, the basic results, and the conclusions. It should be approximately 1 paragraph in length (100-300 words). **DO NOT COPY AN ARTICLE'S ABSTRACT!** See the following example:

Murphy, KA (1999) A prehistoric example of polydactyly from the iron age site of Simbusenga, Zambia. *American Journal of Physical Anthropology*, 108 (3): 311-320.

Human burials, dated A.D. 1100-1500 were examined from the Iron Age site of Simbusenga, located some 35 miles NW of Victoria Falls in Zambia. Pedal polydactyly was discovered in the fragmentary remains of a young adult of indeterminant sex, aged 14-25. The preaxial form of polydactyly is indicated with a bilateral involvement of the first metatarsals. There is incomplete hypoplastic duplication of both first metatarsals with broad heads for the metatarsal-phalangeal joints. No digital malformations were found in the other seven individuals with feet and/or hands from the site. Several studies point to autosomal dominance for cases of isolated polydactyly, but inheritance and patterning of preaxial polydactyly are still incompletely understood. The condition is also found in conjunction with genetic malformation syndromes such as: Acrocephalypolysyndactyly, Lambotte, Oro-facial-digital, and VATER. High frequencies of polydactyly are reported for African and African-American populations, but further analysis reveals that the bulk of previously reported cases of polydactyly are representative of the postaxial form as opposed to the preaxial expression seen here.

- You may find more information on doing an annotated bibliography here:
 - <http://www.library.cornell.edu/olinuris/ref/research/skill28.htm>
 - Here is a sample of one used by a nutrition program:
 - http://www.phishare.org/files/1728_ENA_20annotated_20bibliography.pdf
- The bibliography should be typed and double-spaced in 12 point font.
- You should use the style of citation within your field. If you do not know, use APA. Refer to the following website to see how to do this:
- <http://linguistics.byu.edu/faculty/henrichsenl/apa/apa01.html>

Research paper: Consequences (20 points)

This assignment should take 2-3 pages, double spaced, 12 point font. The assignment should focus on consequences seen/reported all over the world among different populations.

- What are the functional and health consequences of the problem chosen?
- What are the societal and economic consequences of the problem chosen?

Research paper: Strategies and evaluation (20 points)

This assignment should take 3-4 pages, double spaced, 12 point font.

- First part: give an outline of strategies or mix of strategies that have been used in an attempt to ameliorate/ intervene/prevent nutritional problem. Your focus should vary from worldwide to local: what has been done to help prevent/treat problem? How successful have these strategies been? What are the failures? Were these strategies/programs/interventions evaluated? What were the evaluation methods used? What were the results of the evaluations?

- Second part: Outline a strategy or mix of strategies to ameliorate or intervene in the problem, and preventive measures to be taken. Justify your selection of activities in terms of feasibility, potential for impact, and sustainability.
- Third part: How would you evaluate the success of your intervention or program?
- Fourth part: How would you communicate to and convince a policymaker to invest in your program?

Research paper: Final presentation

(10 points) You will present your research paper in a 10-15 minute presentation on December 3rd and December 10th. You may use power point or other visual aids.

Research paper: Final write-up

(10 points) You will also hand in a final report, which will be a compilation of your research paper work and any corrections (**Due within 48 hours of your presentation**).

TOPICAL OUTLINE – Please note that this may change...

Week 1 (9/3):

Introduction to the course. Give introductions. Go over syllabus. What is nutrition? Basic review of nutrition concepts. What is malnutrition? How do we view/perceive nutrition, hunger and malnutrition worldwide? Why is that important? What are some of the challenges that face the world today concerning malnutrition? Determinants of nutrition: analysis of community nutrition situation in relation to other factors.

Readings:

“Multi-factorial causation of malnutrition” from Nutrition in the community. McLaren D.

“Overfed and Underfed: the global epidemic of malnutrition”, Gardner G & Halweil B, World Watch paper 50, March 2000, World Watch Institute.

“AIDS and food security”, Piot P, Pinstrup-Andersen P, Gillespie S & Haddad L, IFPRI, 2001-2002

Week 2 (9/10):

Overview on nutrition assessment techniques including direct (clinical, anthropometry, dietary intake and biochemical measures) and indirect (health statistics, ecological variables) methods. We will examine methods that can be used more appropriately in international settings.

Readings:

Chapters 1 & 9: “Principles of nutritional assessment”, Rosalind Gibson.

“Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies”, WHO Expert Consultation, The Lancet, 363, 2004.

“Clinical pallor is useful to detect severe anemia in populations where anemia is prevalent and severe” Stoltzfus et al, Journal of Nutrition, 129: 1675-1681, 1999.

Week 3 (9/17):

Nutrition and Reproduction

What is the role of nutrition in determining pregnancy outcomes?

“Position of American Dietetic Association: Nutrition and Lifestyle for a Healthy Pregnancy Outcome”, JADA, March 2008

“Effects of maternal multiple micronutrient supplementation on fetal growth: a double-blind randomized controlled trial in rural Burkina Faso”, Am J Clin Nutr 2008;88:1330–40

“Metabolic Syndrome in Childhood: Association With Birth Weight, Maternal Obesity, and Gestational Diabetes Mellitus”, Pediatrics Vol. 115 No. 3 March 2005

Week 4 (9/24):

Begin to explore child feeding practices: lactation, breastfeeding, formula feeding, weaning and complementary foods. Nutritional needs of the breastfeeding mother and the

breastfed infant. Look at policies in support of breastfeeding. WHO's position concerning HIV/AIDS and breastfeeding.

Readings:

More than nutrition: Breastfeeding in Urban Mali Dettwyler KA, *Medical Anthropology Quarterly, New Series*, 2 (2): 172-183, 1988

“Effect of community-based promotion of exclusive breastfeeding on diarrhoeal illness and growth: a cluster randomised controlled trial”, Bhandari et al, *The Lancet*, 361(9367):1418-23, 2003 Apr 26

“Do baby-friendly hospitals influence breastfeeding duration on a national level?”, Merten et al, *Pediatrics*, 116(5):e702-8, 2005 Nov;.

Week 5 (10/1):

Begin to explore child feeding practices: formula feeding, weaning and complementary foods. Infant formulas: their development, composition and utilization. Developmental aspects of feeding young children: multi-mixes and weaning foods.

Readings:

“Complementary feeding practices and dietary intakes from complementary foods amongst weanlings in rural Malawi”, Hotz C & Gibson RS, *European Journal of Clinical Nutrition*, 25: 841-849, 2001.

“Relationship between feeding practices and weanling diarrhea in northeast Thailand”, Cao et al, *Journal of health population and nutrition*, 18(2):85-92, 2000 Sep.

Week 6 (10/8):

Protein-energy Malnutrition

Explore mechanisms and etiology. Special development, biological, psycho-social, cultural problems passing through the weaning or transitional period. Approaches to address PEM.

Readings:

“Protein-Energy Malnutrition” from Present Knowledge in Nutrition.

“The nature of child malnutrition and its long-term implications” Martorell R, *Food And Nutrition Bulletin*, 20 (3), 1999

“Definition of chronic energy deficiency in adults. Report of a working party of the international dietary energy consultative group”, James WPT, Fero-Luzzi A, Waterlow, JC., *European Journal of Clinical Nutrition*, 42: 969-981, 1988.

Week 7 (10/15):

Meet with Sara Sheehan. Librarian for the College of Health and Human Services.

Week 8 (10/22):

First half: Midterm exam

Second half:

Introduce micronutrient deficiencies: Vitamin A, Zinc & Iodine Assessments, interventions and cost-effectiveness.

Readings:

Mitra, A., Alvarez, J. & Stephensen, C. B. (1998) Increased urinary retinol loss in children with severe infections. The Lancet 351: 1033-1034.

“Zinc homeostasis in Malawian children consuming a high-phytate, maize-based diet”, Manary et al, American Journal of Clinical Nutrition, 75: 1057-1061, 2002

Michael B Zimmermann (2007) “The adverse effects of mild-to-moderate iodine deficiency during pregnancy and childhood: a review. Thyroid 17: 829-835.

“The impact of iodised salt or iodine supplements on iodine status during pregnancy, lactation and infancy” Michael B Zimmermann, Public Health Nutrition Journal, 2007 Dec;10(12A):1584-95.

Week 9 (10/29):

Continue overview of micronutrient deficiencies: mineral deficiencies: Iron, Vitamin B12, folate, calcium & vitamin D. Assessments, interventions and cost-effectiveness.

Readings:

Mwadime, R., Harvey, P., Naikoba, S., Sserujongi, L., Bachou, H., Arinaitwe, L. & Maina, G. (2002) Overcoming barriers to effective maternal anemia in interventions during antenatal services in Uganda (MOST, ed.

“Increased risk of vitamin B12 and iron deficiency in infants on macrobiotic diets”, Dagnelieu, PC. Et al., American Journal of Clinical Nutrition, 50: 818-824, 1989.

Pettifor, J. M. (2004) Nutritional rickets: deficiency of vitamin D, calcium, or both? Am J Clin Nutr 80: 1725S-1729S.

Week 10 (11/5):

Outcomes of malnutrition: Infection and functional outcomes.

Explore interaction between malnutrition and infection. Explore associations/relationships between malnutrition and developmental outcomes: motor and cognitive development.

Readings:

Stephenson, L. S., Latham, M. C. & Ottesen, E. A. (2000) Malnutrition and parasitic helminth infections. Parasitology 121: S23-S28.

Hambidge, K. M. (1992) Zinc and diarrhea. Acta Paediatr: 82-86.

Georgieff, M. K.(2007) Nutrition and the developing brain: nutrient priorities and measurement. Am J Clin Nutr 85: 614S-620S

Grantham-McGregor, S., Baker-Henningham, H. (2005) Review of the evidence linking protein and energy to mental development. Public Hlth Nutr. 8(7A): 1191-1201

Beard, J. L. (2008) Why iron deficiency is important in infant development. J Nutr 128: 2534-2536

Week 11 (11/12):

Overview of nutrition transition. Nutritional issues in developed countries: how do they differ from those in developing countries? Who are the malnourished in developed countries?

Readings:

“Critical periods in childhood for the development of obesity”, Dietz WH, Am J Clin Nutr, 59: 955-959, 1994

“Hunger and health among undocumented Mexican migrants in a US urban area”, Hadley et al, Public Health Nutrition, 2007 Jul 5;:1-8

Week 12 (11/19):

Initiatives to improve nutrition and health status: developing and developed countries. What works? What kinds of activities are governmental organizations, multilateral organizations, and non-governmental organizations doing?

Readings:

“Improving nutritional impacts of agricultural interventions: strategy and policy briefs”, Bonnard P, FANTA, AED, 2001.

“Opportunities for improving the quality of nutritional services in the National Health System in Mozambique: Findings from Manica Province”, Aguayo, V. M., Roley, J. A., Malanzele, J. & Meershoek, S. P. (2004) Journal of Tropical Pediatrics 50: 314

“Participatory nutrition education and adoption of new feeding practices are associated with improved adequacy of complementary diets among rural Malawian children: a pilot study”, Hotz C & Gibson RS, European Journal of Clinical Nutrition , 2004: 1-12

“Household participation in the food stamp and WIC programs increases the nutrient intakes of preschool children”, Rose D, Habicht J-P, Devaney B, Journal of Nutrition, 128: 548-555, 1998.

Houston, R. (2003) Why they work: An analysis of three successful public health interventions. Vitamin A supplementation in Ghana, Nepal and Zambia (MOST).

Week 13 (11/26): THANKS-GIVING BREAK!

NO CLASS! Happy thanks-giving!

Weeks 14 (12/3) and 15 (12/10):

*******PRESENT RESEARCHPAPER*******

Presentations/Discussions of research topics

TURN IN RESEARCH WRITE-UP WITHIN 48 HOURS OF PRESENTATION

Academic Honesty: George Mason University operates under an honor system, which is published in the University Catalog and deals specifically with cheating, attempted cheating, plagiarism, lying, and

stealing. Please familiarize yourself with the honor code, especially the statement on plagiarism (<http://www.gmu.edu/facstaff/handbook/aD.html>). If you have questions about when the contributions of others to your work must be acknowledged and appropriate ways to cite those contributions, please talk with the professor.

Students with Disabilities: All students with questions or concerns about this class are encouraged to set up a time to meet with the professor, preferably during the first 2 weeks of the semester. Students with disabilities should work with the Disabilities Resource Center (DRC) to identify appropriate accommodations and communicate those with the professor.

COURSE POLICIES AND COMMUNICATION

Because oral and written communication skills are critical to your professional development, I will evaluate your work not only on content, but also on spelling, punctuation, and grammar. You are strongly encouraged to use spell and grammar checks, to seek assistance from the writing tutors at the University's Writing Center and to ask for peer reviews of your work prior to submission.

CELL PHONES, PAGERS, AND MISCELLANEOUS COURTESIES

If you bring a cell phone or pager with you to class, please turn it off or put it on vibrate if possible, as the ringing can disrupt class activities. We will all appreciate this courtesy.

LAPTOP COMPUTERS

Students are welcome to use laptops to take notes in the class during lectures, but not for any other activities, such as surfing the web, emailing, or working on assignments for other classes.

ACCESS TO STUDENT WORK

Copies of your work in this course including copies of any submitted papers may be kept on file for institutional research, assessment and accreditation purposes. All work used for these purposes will be submitted anonymously.

OTHER CONCERNS

If you have concerns or issues relating to the content or conduct of the class, please come see me and talk with me directly. Although the specifics of these conversations are entirely confidential, they may provide me with useful suggestions that may be shared indirectly with the class to improve the learning experience for all students. As a matter of policy, I do not respond to anonymous e-mails.

E-mail Accounts: Please remember that due to the new privacy policies at the university, we shall be sending all e-correspondence to your GMU accounts.

OTHER RELEVANT CAMPUS AND ACADEMIC RESOURCES

Counseling Center

Student Union 1 (SUB 1), Rm. 364; 993-2380
SUB 1, Rm. 345; 993-2700

Student Technology Assistance and Resources (STAR) Center

Johnson Center 229; 993-8990

Writing Center

Robinson A116; 993-1200

