

OKLAHOMA STATE UNIVERSITY
ACADEMIC PROGRAM REVIEW
EXECUTIVE SUMMARY

DEPARTMENT OR DEGREE PROGRAM: Nutritional Sciences

The programs in the Nutritional Sciences Department (NSCI) are closely linked to the mission of Oklahoma State University and the College of Human Environmental Sciences. The Department of Nutritional Sciences promotes human health and quality of life through scholarly achievements and mentors the continuing development of professionals in the fields of nutrition, dietetics and foods. At the undergraduate and graduate levels we provide students with excellent academic experiences which enable them to interpret and to contribute to scientific understanding of human nutrition and to apply this information to nutritional care.

The program review for the Department of Nutritional Sciences covers a six year period from July 1, 1997 through June 30, 2003. During this period, undergraduate student enrollment increased by more than 135%. Increases in student numbers have been particularly striking in the Human Nutrition/Premedical Sciences option as students recognize the value of nutrition in disease prevention and select that background for their pre-professional training. Professional school acceptance has been excellent for these students indicating student quality and the rigor of the program. Program quality is also indicated by the numbers of students receiving highly recognized scholarships. We have had Truman and Udall scholars as well as numerous Wentz and Freshman Research Scholars. We are also experiencing very rapid growth in the Foods and Nutrition option which was new at the time of our previous program review. The most rapidly growing areas in this program emphasize nutrition and exercise science and nutrition as preparation for various allied health programs. Only three “non-completers” were identified for our program by institutional research and one of those three has since graduated. Such a small number of “non-completers” may partially reflect the attention given to advising in our department.

Graduate students supervised in Nutritional Sciences have remained relatively stable although a number of these students transferred to our new non-thesis option which is housed under the college umbrella as a M.S. in Human Environmental Sciences or to the non-thesis program in Natural and Applied Sciences which emphasizes health care administration and is under the College of Engineering. Managing the rapid growth in undergraduate students has made it difficult to expand the graduate program even though our faculty members have the expertise to provide challenging research opportunities for more graduate students.

During the period of this review, five resident and one co-operative extension faculty have been added for a departmental total of 16. Of this total, one is currently with Academic Affairs and three have 100% assignments with the Co-operative Extension Service. The department has three office support staff that are extremely busy managing the diverse responsibilities of a department that is providing support for pre-professional student applications, for numerous active research projects and for rapid student growth. We have only one technical support position for the entire department and that position is funded from Oklahoma Agricultural Experiment Station funds. The sharp declines in college allocations from that budget make even that single support position precarious. Increased technical support for faculty research could markedly enhance productivity. At this time, less than half of the departmental operating budget comes from instructional funds. Faculty annually submit several million dollars in research proposals. Funds awarded to date in FY04 have reached \$1.1 million.

Dean _____ Date _____

(Signature)

Note: If your program is accredited by an outside agency, the self-study and subsequent comments from the review team can be submitted to fulfill requirements of this program review. This review can be scheduled to coincide with your accreditation process. You **must** complete page 1 and 2 of this document to submit with your accreditation materials.

OKLAHOMA STATE REGENTS FOR HIGHER EDUCATION

2003- 2004
ACADEMIC PROGRAM REVIEW

BACCALAUREATE, MASTERS & DOCTORAL DEGREES

OKLAHOMA STATE UNIVERSITY

Department of Nutritional Sciences
Title of unit or degree program reviewed (Level III)

With options (Level IV) in: Dietetics
Foods and Nutrition
Human Nutrition/Premedical Sciences

Bachelor of Science in Nutritional Sciences, Master of Science in Nutritional Sciences, Doctor of Philosophy in Human Environmental Sciences
Degree designation as on diploma (Level II)

B.S./M.S./Ph.D.
Formal degree abbreviation (Level I)

Degree-granting academic unit	College of Human Environmental Sciences				606
	(Name)				(Cost Center)
	B.S.	M.S.	M.S.	Ph.D.	
CIP code	190501	190501	190501	190101	
HEGIS code	1306	1306	1306	1306	
Instructional Program code	097	098	427	123	

Name of department head
(person who oversees degree program listed above) Cheing-I Wei

Program holds specialized accreditation from Commission on Accreditation for Dietetic Education of The American Dietetic Association

Name and title of contact person: Cheng-I Wei
(Name)
Interim Department Head
(Title)

Date of Institutional Governing Board Review: _____

President _____ Date: _____
(Signature)

OVERVIEW

A. Description of the Departmental/Program Review Process

The program review was conducted by faculty (Drs. Andrea Arquitt, lead pre-medical sciences advisor, Barbara Stoecker, former department head, and Kathryn Keim, director of the didactic program in dietetics) in conjunction with OSU's Institutional Research staff and the Department of Nutritional Sciences staff. Quantitative and qualitative documents from Institutional Research, NSCI department records, NSCI department assessment documents, and accreditation documents for the Dietetics program were used as sources of the data.

B. Recommendations from Previous Program Reviews.

We received no feedback from the previous program reviews submitted in 1991 and 1995. Changes made in the programs offered and in curricula and learning objectives were made through self-studies, assessment plans and reports, accreditation standards and by recommendations being considered nationally in our discipline.

CRITERION I Program Centrality

A. Goals & Objectives of Degree Programs

Study in Nutritional Sciences includes diverse areas from nutrition education and behavior change to nutrient needs across the life cycle to molecular mechanisms of nutrient action. Students in the Department of Nutritional Sciences include both traditional and non-traditional students. We also attract students with degrees in other subject matter areas that desire professional certification in dietetics. These students may earn second B.S. degrees or may pursue "extended" M.S. degrees taking additional coursework for eligibility for a dietetic internship. We have considerable student demand for our programs in Tulsa but have not been able to expand that part of our program due to rapid growth of our program on the Stillwater campus and lack of additional faculty. Our graduate program is very attractive to international students seeking masters and doctoral degrees. Many of these students return to their home countries and provide expertise to their governments and international agencies.

To meet the needs of our growing student enrollment the department has three undergraduate degree options which are detailed below.

Degree Option: Dietetics

Program Clientele: Undergraduate students whose goals include becoming Registered Dietitians

Program Objectives: Students will attain the knowledge and skills to be well prepared in an entry level dietetics position.

Expected Student Outcomes:

Students will be able to:

- a) communicate orally and in writing;
- b) educate and counsel persons as individuals and in groups;
- c) apply clinical skills to conduct medical nutrition therapy;

- d) apply management skills in multiple settings;
- e) interpret outcome based research; and
- f) utilize problem solving skills.

Students are expected to participate in professional, college, university, departmental, and community organizations both through leadership and membership positions.

Degree Option: Foods and Nutrition

Program Clientele: Students desiring careers in foods and health professions other than dietetics for which nutrition provides an appropriate subject matter emphasis.

Program Objectives: Students will attain the knowledge and skills to be competitive for an entry level position in their career choice or for admission to professional schools.

Expected Student Outcomes:

Students will be able to:

- a) communicate orally and in writing;
- b) apply management skills in multiple settings;
- c) interpret outcome based research; and
- d) utilize problem solving skills.

Students are expected to participate in professional, college, university, departmental, and community organizations both through leadership and membership positions.

Degree Option: Human Nutrition/Pre-medical Sciences

Program Clientele: Students seeking admission to medical, dental or pharmacy professional schools

Program Objectives: Students will attain foundation knowledge leading to success in admission and completion of professional degrees.

Expected Student Outcomes:

Students will be able to:

- a) communicate orally and in writing;
- b) apply management skills in multiple settings;
- c) interpret outcome based research; and
- d) utilize problem solving skills.

Students are expected to participate in professional, college, university, departmental, and community organizations both through leadership and membership positions.

Degree Program: Master of Sciences in Nutritional Sciences

Program Clientele: Students preparing for advanced level positions in dietetics, nutrition or for doctoral level programs

Program Objectives: Students will attain the knowledge and skills to be well prepared in an advanced level positions and will be successful in gaining admission to doctoral level programs in nutritional sciences.

Expected Student Outcomes:

Generating Knowledge

Students will:

- a) search the research literature and summarize findings for formulation of research questions;
- b) participate in developing research objectives and plan methods to meet objectives;

- c) participate in developing proposals using appropriate research methodology, research instruments, techniques and analyses (quantitative and qualitative);
- d) participate in planning and conducting research, including problem-solving, data handling and statistical analyses;
- e) interpret data appropriately and determine implications;
- f) engage in collaborative teaming to plan and conduct research;
- g) disseminate findings to appropriate audiences; and
- h) critique manuscripts using analytical skills for effective evaluation.

Resource Generation

Students will engage in collaborative learning to develop fundable proposals.

Sharing Knowledge

Students will:

- a) present educational and/or training materials in an effective manner to facilitate learning;
- b) engage in collaborative teaming to facilitate learning; and understand the fundamentals of critical thinking and creative problem solving and learn practical strategies for engaging student thinking.

Community Engagement (and Professional Service)

Students will:

- a) work effectively as a member of a team to plan and/or deliver outreach programs;
- b) solve problems creatively; and
- c) participate in an appropriate professional organization.

B. Linkage of the Program to Institution's Mission:

OSU Mission Statement: Oklahoma State University, a land grant system, enriches lives through teaching, research, and outreach.

CHES Mission: The College of Human Environmental Sciences advances and applies knowledge of the interaction of people with their environments to develop effective professionals, engaged citizens and visionary leaders who promote the physical, social, and economic well-being of people.

Department of Nutritional Sciences Mission: The Department of Nutritional Sciences promotes human health and quality of life through scholarly achievements and mentors the continuing development of professionals in the fields of nutrition, dietetics and foods.

CRITERION II

Program Curriculum and Structure

A. Program Structure

Degree plans for the B.S. in Dietetics, Foods and Nutrition, and Human Nutrition/Pre-medical Sciences and the M.S. in Nutritional Sciences are included in Appendix A.

The M.S. in Nutritional Sciences has a required core of 12 credit hours. Six credit hours are allocated to thesis and the remainder of the 30 hours (minimum) are determined by the student in consultation with his/her research committee.

Students may also participate in the Interdisciplinary M.S. in Food Science, the M.S. in HES (non-thesis option with a minimum of 36 credit hours 21 of which must be at the 5000 or 6000 level), or the M.S. in Natural and Applied Sciences. Students pursuing the Master's International Program with the Peace Corps may find one of the non-thesis options particularly appropriate.

The Nutritional Sciences Department also maintains a fully accredited post-baccalaureate dietetic internship (DI) program. Students enrolled in the DI are enrolled in the M.S. in Nutritional Sciences.

B. Distance Education

Course	FY98	FY99	FY2000	FY2001	FY2002	FY2003
	Number enrolled	Number enrolled	Number enrolled	Number enrolled	Number enrolled	Number enrolled
On-line						
NSCI5393 Nutr for Elderly	7	2				
NSCI 5870 Outcomes Research in Dietetics		4				
Compresed Video						
NSCI 5753 Mgt. in Healthcare Systems	37		50	33	34	10 (summer) 34 (fall) 44 (spring)
NSCI 5673 Manpower Management		25	27	23	22	
NSCI 5012 Public Policy			29			20
NSCI 5123/6453 Research Developments in NSCI				18		
NSCI 5612 Theory, Research and Practice				10		
NSCI 6233 Current Issues in NSCI				14		
NSCI 5363 Maternal and Infant Nutrition					11	
NSCI 5373 Childhood Nutrition						20

C. Articulation Agreement

Articulation agreements exist with Tulsa Community College for the dietetics option. We are currently updating the agreement with TCC for selected emphases within the Foods and Nutrition Option. Because a survey conducted in Oklahoma of success factors in gaining admission to medical school indicated lower acceptance rates for students who took core science courses at institutions other than regional or comprehensive universities, we have chosen not to have articulation agreements for the Human Nutrition/Pre-medical Sciences option. However, those students who transfer into our program from community colleges are advised vigorously to improve the attractiveness of their applications for admission to medical schools.

D. Multidisciplinary programs

Four faculty participate in the interdisciplinary Food Science program both at the undergraduate and graduate level. In addition, another is a faculty member in the interdisciplinary health care administration program offered through the Master of Science in Natural and Applied Sciences. Several faculty participate in the Graduate Program in Gerontology at OSU and six faculty are members of the School for International Studies faculty.

CRITERION III Program Resources

Department of Nutritional Sciences

Annual Expenditures		Regular Funds			Special Funds		
		(estimate)			(estimate)		
		2000-2001	2001-2002	2002-2003	2000-2001	2001-2002	2002-2003
Salaries and Wages:							
wages							
Administration	Amount	6,006	35,967				
	Number of FTE*						
Faculty	Amount						
	Number of FTE						
Regular	Amount	532,216	610,551	680,304	169,936	204,743	191,001
	Number of FTE	8.32	9.55	10.51			
Adjunct	Amount		8,000	23,270	11,668		
	Number of FTE						
Student Assistants	Amount	127,259	111,253	123,716	319,860	400,216	253,481
	Number of FTE	6.42	5.61	5.24			
Clerical	Amount	52,464	66,158	65,775			
	Number of FTE	3.0	3.0				
Other (Specify)	Amount				77,566	103,265	74,828
Post Doc	Number of FTE						
Fringe Benefits:		157,336	213,951	224,356	73,254	109,987	93,161
Equipment:		3,431	5,503	3,499	64,217	226,807	146,472
Supplies:		14,188	12,240	12,269	106,672	146,716	110,450
Travel:		10,363	5,467	2,203	8,519	25,322	21,154
Communication:		9,274	6,736	6,913	4,056	7,694	1,243
Contractual Services		33,334	13,677	8,070	1,114	1,532	1,885
Adv/Lic		6,809	5,832	760			
Research Expense					183,391	338,878	122,891
TOTALS:		\$952,679	1,095,321	1,151,135	1,020,253	1,565,160	1,016,566

Explanatory Notes:

**1 FTE equals 1 full-time position, or the equivalent in part-time positions.*

A. Program Finances

- Grants, Contracts, and Gifts Awarded to Program Faculty.

External Funds			Dollar Amounts				
Name of Grant, Contract, or Gift	Principal Investigator	Source of	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
		Funds					
ONE Program	Keim	ODHS	\$ 14,531	\$ 17,290	\$ 40,095	\$ 24,594	\$ 24,445
Diabetes Mellitus Concerns of CNEP Participants	Keim	OAFCE			\$ 2,390		
Effect of Seafoods, including Fish, on Iodine Bioavailability in a Cassava and Millet Based Staple Food in Guinea	Stoecker	The African-American Institute		\$ 1,358			
Development work for the Pecan Research for Knight Creek Farms	Knight	Knight Creed Farms/USDA	\$ 7,000				
Absorption and Urinary Excretion of 51 Chromium Complexes in Rats	Stoecker	Industry	\$ 33,989				
Calcium Kinetics Related to Bone Formation and Resorption.	Smith/Stoecker	University of Oklahoma, NASA EPSCoR		\$ 1,500			
Diabetes Risk Factors in Native American Oklahoma Women.	Keim	OCAST			\$ 44,037	\$ 44,485	
Flaxseed Consumption Reduces the Risk of CHD	Arjmandi	SmithKline Beecham		\$ 9,817			
Isoflavones and Estrogen Role in Ovariectomized Rat Bone.	Arjmandi	Communiqué, Inc.			\$ 10,000		
Indian Health Professions Scholarships	Ebro	Indian Health Services			\$ 17,470	\$ 17,406	\$ 34,283

**Program Finances
(cont'd)**

- Grants, Contracts, and Gifts Awarded to Program Faculty.

External Funds			Dollar Amounts				
Name of Grant, Contract, or Gift	Principal Investigator	Source of Funds	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
		Enhanced Capacity For Assessing Micronutrient Interactions and Immunity	Arquitt	OSRHE	\$ 32,500		
Protein Intake in Potentially Insulin Resistant Adults: Impact on Glycemic and Lipoprotein Profiles	Gates	National Pork Producers Council			\$ 16,391		
The Effect of Nutrition Care on Dietary Adherence by men with a History of Myocardial Infarction.	Gates	ADA	\$ 740				
Trace Mineral effects on Lipids in Postmenopausal Women	Hermann	OCAST	\$ 34,980				
CDR Honorarium	Keim	ADA, CDR			\$ 1,236		
Do Soy Isoflavones Reverse Bone Loss Due to Ovariectomy?	Khalil, Arjmandi	OCAST				\$ 44,974	\$ 45,000
Effect of combining bone bioactive agents on bone loss in the Ovariectomized rat.	Arjmandi	Industry			\$ 54,915		
Retention of Undergraduates in the Biological Sciences at OSU.	Arquitt	Howard Hughes Medical Institute				\$ 11,200	

Program Finances
(cont'd)

- Grants, Contracts, and Gifts Awarded to Program Faculty.

External Funds			Dollar Amounts				
Name of Grant, Contract, or Gift	Principal Investigator	Source of Funds	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
		Mechanism of Action of Vitamin E Supplementation in the Prevention on Bone Loss Associated with Spaceflight.	Smith	NASA EPSCoR			
Mechanisms of action of vitamin E supplementation in the prevention on bone loss associated with spaceflight.	Smith	Oklahoma NASA EPSCoR				\$ 21,010	
Vitamin E's ability to suppress COX-2 activity in osteoblasts. - Student Fellowship.	Smith	Oklahoma NASA EPSCoR.				\$ 7,333	
Effect of Multiple Ingredients on Bone Metabolism in the Ovariectomized Rat.	Arjmandi	Industry				\$ 78,985	
A new tool to approach an age-old problem: Assessing bone quality for reduction of osteoporosis.	Stoecker	Founders and Associates				\$100,000	
Exploring Collaborative Activities for Space Food Development.	Hinds	NASA EPSCoR, OU					\$ 1,500
Analysis of Bone Specimens.	Arjmandi	Industry					\$ 11,408
Combating Micronutrient Malnutrition: Assessment Constraints to Including Animal Source Foods (ASF) in Children's Diets in Rural Ethiopia and Kenya.	Stoecker	Global Livestock, Univer of Cal					\$ 50,000
Effects of Ovariectomy and isoflavones on cholesterol	Lucas	OCAST	\$ 34,262				

Program Finances
(cont'd)

- Grants, Contracts, and Gifts Awarded to Program Faculty.

External Funds			Dollar Amounts				
Name of Grant, Contract, or Gift	Principal Investigator	Source of Funds	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
		Dietary Fat/Iron: Role in Immune Function.	Droke	OCAST	\$ 34,803	\$ 34,996	
Effects of Iron on Bone in Growing and in Skeletally Mature Rats.	Arquitt	OCAST	\$ 68,763				
Flaxseed Phytoestrogens may Positively Affect Bone.	Arjmandi, Stoecker	NIH/NIA	\$ 71,650				
The Role of Vitamin E in Preventing Oxidative Damage to Bone in Near Weightlessness and its Effects on Bone Quality.	Stoecker, Arjmandi, Smith	NASA		\$206,262			
The Effect of Soy or Its Isoflavones on Osteoarthritis.	Arjmandi	Protein Technologies, Int'l/OCAST	\$ 70,000				
The Effects of Flaxseed on Total-and LDL-cholesterol and Serum Lipoprotein(a).	Arjmandi	OCAST		\$ 44,474	\$ 44,996		
Improving and Evaluating the Bone Protective Efficacy of Soy Products.	Arjmandi	OCAST		\$ 72,422			
Prevalence and Factors Influencing Childhood Obesity in African Americans and Native Americans of Oklahoma.	Spicer	Langston University/USDA			\$ 45,596		\$ 14,141
Clinical Analysis Services.		Varies					
	Arjmandi					\$ 2,000	
	Stoecker		\$ 150		\$ 6,300		
	Lucas					\$ 3,000	
	Spicer						\$ 3,500

Program Finances
(cont'd)

- Grants, Contracts, and Gifts Awarded to Program Faculty.

External Funds			Dollar Amounts				
Name of Grant, Contract, or Gift	Principal Investigator	Source of Funds	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
		Enhanced Capacity for Expanding Research in Osteoporosis.	Arjmandi	USDA/OSRHE	\$ 50,000	\$ 50,000	
Nutritional Laboratory Renovation	Stoecker	Founders and Associates/OSRHE	\$150,000	\$150,000			
Human Nutrition Assessment Lab	Stoecker	OSRHE	\$125,000				
Bone Loss Reversal with Prune in Rat Osteoporosis Model	Smith	OCAST				\$ 45,000	
	TOTALS		\$639,608	\$558,154	\$153,043	\$315,002	\$125,549

B. New facilities and major equipment

During 1997 and 1998 the Nutritional Sciences Research Laboratories were totally reconstructed and expanded. In addition, new space was allocated to the department for a human nutrition assessment laboratory.

The following equipment was added to the Human Assessment Laboratory:

QDR 4500 Elite DEXA with complete software package for bone density, body composition (human and small animals)

Scanco Medical AG μ CT desktop

Harpenden/Holtain Wall Mounted Stadiometer with metric counter: range 600-2100 mm

Harpenden/Holtain Infant Measuring Table with metric counter: range 220-1150 mm

Seca Model 727 Infant Digital Scale: range 44 lbs: accuracy: 2 g

Seca Model 770 Digital Scale with carrying case: range 440 lbs: accuracy: 50-100 g

Seca Model 664 Wheel Chair Ramp Scale: range 660 lbs: accuracy: 100 g

Holtain Skinfold Caliper: range 40 mm with standardization block

Shorr Infant/Child Height Measuring Board: accuracy .01cm

Shorr Infant/Child/Adult Height Measuring Board: accuracy .01cm

Other laboratories in the department have also received new equipment as follows:

ABX Pentra 120 Retic Hematology instrument

Alfa Wassermann Clinical Chemistry System

NOVA Ionized calcium/pH analyzer

Chronolog whole blood aggregometer

Packard Tri Carb 2900 TR liquid scintillation counter with chemiluminescence software

Hacker-Bright Clinical Cryostat for sectioning of embedded frozen specimens

Hybaid Hybridization Oven

Waters HPLC equipped with UV/Visible, refractive index, and fluorescence detectors

Bio Tek EX808 microplate reader with incubation and shaking

Bio-Tek Elx405 Microplate washer

Misonix Ultrasonic Processor for cell lysis without contamination

QUE CO₂ incubators

Skatron MACRO96 Cell harvester for collecting cells from 96-well plates

Nikon TE300 inverted phase contrast microscope equipped with Hoffman modulation contrast and for photomicroscopy

Agilent Gas-chromatography with Mass spectrophotometer and flame ionization detector

Renovation of additional laboratory space was begun in the fall of 2003 for dedicated cell culture and food safety research. That renovation is in progress at the time of this report. New equipment is on order to furnish this laboratory.

C. Academic and administrative efficiencies

More faculty are teaching in their areas of expertise. Offerings for almost all major courses (except the ones providing General Education credit for OSU) have been limited to one semester per year. Most courses offered meet requirements of multiple options within NSCI as well as in other programs at OSU. This is shown in the following table.

Course Offerings, Degree Options and Outside Demand

Class	Title	DIET	HNPS	FDNT	HES Req. in Selected Dept.	Req./Rec. in other majors	Gen ED
NSCI 2111	Prof Careers in Nutr Sci	X		X			
NSCI 2114	Princ of Human Nutr	X	X	X	X	X	X
NSCI 3133	Science of Food Prep	X		X	X		
NSCI 3223	Nutrition Life Span	X	X	X	X	X	
NSCI 3440	NSCI Prof Experience		X	X			
NSCI 3543	Food & Human Env	X	X	X	X	X	X
NSCI 3812	Nutr Assess Couns Skill	X	X	X			
NSCI 3991	Pre-Internship Seminar	X					
NSCI 4013	Experimental Foods	X		X			
NSCI 4023	Nutr & Hlthcare Issues		X	X			
NSCI 4133	Nutr Exercise & Sport			X			
NSCI 4323	Human Nutrition & Metabolism	X	X	X		X	
NSCI 4373	Creative Teaching Nutr	X		X			
NSCI 4573	Food Systems Adm	X			X		
NSCI 4643	Crit Iss Nutr Hlthcare	X	X	X			
NSCI 4733	Community Nutrition	X	X	X			
NSCI 4853	Med Nutr Therapy I	X					
NSCI 4863	Med Nutr Therapy II	X					

Further administrative efficiencies have been developed.

Student Recruitment: Procedures for processing graduate applications have been enacted that resulted in a <10 day response to applicants. These include attractive form letters sent by e-mail to applicants that save both time and money. A staff member has been trained to respond to requests for undergraduate and graduate information so that less of the routine correspondence requires faculty input.

Retention Issues: Retention of students through improved advising has been fostered by holding group advising sessions for undergraduates by NSCI option and class standing so that experienced advisors are paired with newer faculty. This reduces the likelihood of advising errors that might increase time to degree completion. In an effort to increase student retention and academic success, a letter is generated each semester for students who receive less than a 2.5 GPA inviting them to visit with their advisor about their academic progress. These letters are given to each student's advisor to send at their discretion. To encourage and recognize student successes congratulatory postcards signed by faculty are also sent to students with $GPA \geq 3.5$. A staff member maintains a student database with current e-mail addresses so that students are quickly notified of scholarship opportunities, registration deadlines and other information.

Financial Issues: Financial tracking systems have been developed to monitor class expenses to request student fees. Systems for tracking grant expenditures have been established that help the faculty manage grants and contracts.

Tracking Graduates: The NSCI faculty maintain contact with graduates through e-mail, letters and professional meetings. These contacts are transferred to departmental staff that developed and maintain an electronic directory of graduates allowing NSCI to recognize outstanding graduates, nominate former students for awards and maintain a pool of supporters for recognition of the department and its activities. An emeriti faculty began this work, and a staff member computerized the directory information. NSCI faculty value former students and graduates.

CRITERION IV Productivity

A. Enrollment

Fall	Undergraduate Headcount Enrollment	Undergraduate Grade Point Average of Majors	Headcount, M.S. in Nutritional Sciences	Headcount, M.S. in HES, Healthcare Admin., and Food Science	Headcount, Ph.D. in HES with Nutritional Sciences Emphasis
1999	117	3.02	46	4 NAS	14 HES 1 FDSC
2000	184	3.14	42	10 NAS 2 HES	13 HES 2 FDSC
2001	203	3.09	39	13 NAS	10 HES 2 FDSC
2002	243	3.11	31	6 NAS 4 HES	11 HES 2 FDSC
2003	305	3.10	36	9 NAS 6 HES 1 FDSC	10 HES 1 FDSC

B. Degrees Conferred

Year	B.S. Degrees Conferred	M.S. in Nutritional Sciences Degrees Conferred	Ph.D. in HES with Nutritional Sciences Emphasis Degrees Conferred
1998-1999	31	7	2
1999-2000	30	10	4
2000-2001	27	16	3
2001-2002	23	8	1
2002-2003	36	12	4

C. Program Non-Completers

Fall (Matriculation year)	Number of Non-completers	Number of Hours		Grade Point
		Attempted	Earned	Average
1995	none			
1996	1	108	104	3.54
1997	2*	143	127.5	3.24

*One of the students listed for 1997 graduated in December, 2003.

D. Student Demand for Academic Unit's Offerings

Year	Student Credit Hours				No. of Courses/Sections (Lecture/Discussion Only)				Average Section Size (Lecture/ Discussion Only)	% Classes Taught By Tenure/Tenure Track Faculty <i>(Excluding Lower Division Saturday Classes)</i>			Student/ Faculty Ratio (Faculty Only)	Student/ Faculty Ratio (Includes Graduate Assistants)
	Lower Division	Upper Division	Graduate	Total	Lower Division	Upper Division	Graduate	Total		Lower Division	Upper Division	Graduate		
1998- 1999	2645	1669	995	5309	13	16	15	44	35	85%	100%	87.5%	18.7	9.03
1999- 2000	2667	1350	963	4980	11	17	16	44	35.3	90%	100%	93%	16.3	8.9
2000- 2001	2898	1474	1042	5414	10	16	17	43	38.5	100%	100%	93%	19.5	10.84
2001- 2002	2830	1744	987	5561	10	18	15	43	38	75%	94%	93%	18.84	11.5
2002- 2003	3274	1953	891	6118	10	20	15	45	43.3	100%	77%	93%	25.72	17.51

CRITERION V
Quality

A. Program Faculty
1. Faculty Qualifications

Name	Faculty Status (Regular or Adjunct)	Faculty Program FTE	Degrees Earned				Related Work Experience (Years)
			Highest		Highest in Teaching Area		
			Type	HEGIS	Type	HEGIS	
B. Arjmandi	Regular	.75	Ph.D.	0424	Ph.D.	0424	25
A. Arquitt	Regular	.75	Ph.D.	1306	Ph.D.	1306	30
B. Brown	Regular, Co-op Extension	0	Ph.D.	1306	N/A	1306	28
E. Droke	Regular	.75	Ph.D.	0424	Ph.D.	0424	16
L. Ebro	Regular	1.0	Ph.D.	0827	MS	1307	41
G. Gates	Regular	1.0	Ph.D.	1306	Ph.D.	1306	22
O. Han	Regular	.75	Ph.D.	1306	Ph.D.	1306	8
J. Hermann	Regular, Co-op Extension	0	Ph D.	1306	N/A	1306	27
M. Hinds	Regular	.75	Ph.D.	0113	Ph.D.	0113	14
J. Huber	Adjunct	.75	MS	1306	MS	1306	24
C. Jarrett	Adjunct	.25,.25	MS	1306	MS	1306	13
K. Keim	Regular	1.0	Ph.D.	1306	Ph.D.	1306	26
T. Kennedy	Regular	.75	Ph.D.	0424	Ph.D.	0424	20
Y. Siewe	Regular	0	Ph.D.	0837	N/A	0837	8

Name	Faculty Status (Regular or Adjunct)	Faculty Program FTE	Degrees Earned				Related Work Experience (Years)
			Highest		Highest in Teaching Area		
			Type	HEGIS	Type	HEGIS	
B. Smith	Regular, Co-op Extension	.75	Ph.D.	1306	Ph.D.	1306	15.5
M. Spicer	Regular	.25	Ph.D.	1306	Ph.D.	1306	10
B. Stoecker	Regular	.55	Ph.D.	0424	Ph.D.	0424	28
S. Williams	Adjunct	.75	MS	0899	MS	1306	20
C. Wei	Regular	.50	Ph.D.	0113	Ph.D.	0113	24

B. Evidence of regional / national reputation and ranking

The most recent Gorman report (10th edition, 1998) ranked the top 50 undergraduate programs in Nutritional Sciences in the nation. Nutritional Sciences at OSU ranked 19th in the nation for program quality. Because there are over 300 accredited undergraduate programs in dietetics in the United States, this is an important recognition. The program at the University of Oklahoma Health Sciences Center was ranked 28th and the other programs were not mentioned. There is no national ranking of graduate programs in Nutritional Sciences.

C. Methods used to evaluate student achievement of program outcomes for each degree program

Degree Program	Assessment Methods Used	Years
B.S. Nutritional Science	Senior Exit Survey	2003, 2002, 2001, 2000, 1999, 1998, 1997
s	Undergraduate program alumni survey	2002, 2000, 1998
	Graduate program alumni survey	2003, 2001, 1999
	DPD ¹ graduates while in DI ² and DI preceptors/supervisors	2000, 1998
	DI graduates and first time employers	2002
	Registered Dietitian exam, DPD graduates	2003, 2002, 2001, 2000, 1999, 1998, 1997
	Registered Dietitian exam, DI graduates	2003, 2002, 2001, 2000, 1999, 1998, 1997

¹Didactic Program in Dietetics

²Dietetic Internship

Feedback from program alumni/documentated achievements of program graduates

Placement is excellent for graduates from our program and many of the dietetic interns have job offers before completing the internship program. Two years after completing the Dietetic Internship, the majority of RDs are making \$35,000 - \$45,000 annual salary. We also received extensive feedback from graduates of the Dietetic which is being considered as we seek a new internship director following the retirement of a long-time faculty and director of the dietetic internship. A full report was provided to the NSCI Department Chair and the Dietetic Internship Director.

D. Overview of results from program outcomes assessment

Senior Exit Survey

Most seniors were pleased with their academic preparation but the ability to explain public policy is an area of weakness in all majors. In the DPD students believed they needed more preparation in the following competencies: pathophysiology, drug-nutrient interactions, apply marketing theory, reimbursement issues, documentation methods, cost of services and budget preparation. All of the NSCI majors feel prepared to interpret current research. Some of these competencies are addressed during dietetic internships.

DPD graduates/DI preceptor

The DI preceptors or supervisors (in 2000) overall felt the DPD graduates were well prepared when they entered the dietetic internship and typically DI preceptors rated the interns higher than the interns rated themselves. The following competencies received high ratings (students were prepared) by the DI preceptors: 52% reported students very prepared in food safety; 39% reported students very prepared in use of current information technologies; and 35% reported

students very prepared in health promotion and disease prevention theories and guidelines. Dietetic Internship preceptors felt the students were not as well prepared in the following competencies: determining costs of services, preparing a budget, calculating enteral and parenteral nutrition formulations, applying microbiological and chemical considerations to process controls, current reimbursement issues, and fluid and electrolyte requirements. These are similar results to the 1998 survey.

Registered Dietitian (RD) Exam

The first time pass rate (5 year average) on the Registered Dietitian registration exam is 92% (79/86) for the undergraduate DPD or dietetics program. The first time pass rate (5 year average) on the Registered Dietitian registration exam is 90% (74/82) for the Dietetic Internship program.

DI graduates and first time employers

Levels of competence in the two general areas of employee skills and dietetic skills were asked of the DI graduate after accepting a first job and the first time employer. In all individual competencies, the first time employer rated the DI graduate higher than the graduates rated themselves. When looking at the two general areas, all DI graduates were rated above the midpoint for competence reflecting a higher competence. There was no difference between the first time employer and DI graduates rating on the two general areas.

E. Feedback from program alumni / documented achievements of program graduates

Alumni (1996 and 2000) were asked how prepared they were when they entered their first position. Of the respondents, 86% or greater stated adequate or very well prepared on all competencies asked. Three competencies the alumni did not feel adequately prepared for were understanding how external factors influence the profession; managing a team of individuals to meet goals; assessing abilities and making plans for professional development. A personal portfolio system is being implemented in the college to increase skills in some of these areas.

F. Other Program Evaluations

The Didactic Program in Dietetics (DPD) conducted a self-study culminating in a site visit for continuing accreditation of the program in March 2001. The site visitor's report is included as Appendix B. The site visitors rated the program very highly. The DPD received accreditation for a 10 year period which is the maximum allowed.

CRITERION VI Program Demand/Need

A. Occupation Manpower Demand

The 2000-2010 job outlook report published in *Occupational Outlook Quarterly* (Spring 2002) predicts the demand for dietitians and nutritionists will increase by 15% primarily due to increased recognition of the role of nutrition in health and the need for increased action in disease prevention. Growth in other areas that our graduates are employed include food service management (+15%), health services managers (+32%), and agricultural and food scientists (+9%). Students in our Human Nutrition/Pre-medical Sciences option are also in demand; the expected increase in need for dentists, pharmacists, physicians and optometrists is +6, +24, +18, and +19% respectively. In our allied health specialization within the Foods and Nutrition option, demand is also great. Students in this option may apply for professional schools including physician assistant (+53 %), nursing programs (+26%), and physical therapy programs (+33%).

CRITERION VII

Program Duplication

A. Identify other degree programs at OSU with similar titles or functions

There are no other degree programs at OSU offering programs leading to eligibility to apply for a Dietetic Internship or to sit for the Registration examination for dietitians. Other programs may prepare professionals for employment in food service administration (HRAD) but not with the health care emphasis that our program offers. In addition, the courses meeting undergraduate management competencies are taught in the HRAD department and are taken by students in both programs simultaneously. Application to medical, dental, pharmacy, optometry, physical therapy or nursing programs require only a specified set of core courses, not a specified degree program.

Students from many degree programs at OSU apply to these professional programs either following completion of the bachelor's degree or prior to its completion. The unique aspect of our program that makes our students stand out is their solid foundation in nutrition which supports prevention of disease.

B. Describe how your degree program is unique

The programs of study in the Department of Nutritional Sciences are unique because they are centered on human nutrition. No other department at OSU has this focus. Our programs offer breadth through course requirements in chemistry, biochemistry, biology, zoology, microbiology, social sciences and humanities. Students graduating from our program are well prepared to enter graduate programs as well as professional schools.

Summary and Recommendations

A. Strengths

Through our Ph.D. in Human Environmental Sciences, the Department of Nutritional Sciences at Oklahoma State University is the only program in the state producing Ph.D. graduates with a specialization in human nutrition. Our M.S. program also is highly regarded in the state for the quality of research experiences available to the graduate students. At the undergraduate level, three other Oklahoma institutions (OU, UCO, and NSU) have undergraduate dietetics programs and two have dietetic internship programs (OU and UCO). However, in these programs faculty numbers are limited and faculty teach outside their areas of specialization. Students in our undergraduate program that are admitted to a Dietetic Internship and students in our graduate Dietetic Internship program have a high pass rate on the Registration Exam for dietitians; the success rate has been high (92% and 90%, respectively). In addition, 74% of the students in our dietetic internship have completed or are working towards M.S. or Ph.D. degrees.

Faculty in the NSCI department have held national level responsibilities including USDA Competitive Research Grants review panel chair, committee member of the National Academy of Sciences Food and Nutrition Board Dietary Reference Intakes committee, invited speakers at NIH and international meetings, positions on editorial boards, and all faculty have been invited to review proposals submitted to federal agencies. The faculty have generated \$1,791,356 from external research grants and have new laboratories and instruments valued at more than \$2.5 M. The majority of these instruments have been purchased since 1998. To date FY04 our contracts and grants awards already have exceeded \$1.1M.

Our undergraduate student numbers have increased by 250% since 1995; this increase has not been at the expense of quality as noted by the high GPAs earned by our students. Our students are also recognized for excellence. We have had one Truman and one Udall Scholar during the period of this review. Our students have also been recognized for other university level honors that include: Wentz Research Projects (13), Wentz Scholarships (3), Niblack Research Scholar (1), Freshman Research Scholars (4), Honor's Theses (2), Retention of Students in the Biological Sciences Scholarship (RSBS) (5), and NASA Student Fellowship (NASA EPSCoR) (3). Our graduate students have also received university and national recognition. These awards include Research Excellence Award Group IV (2) and Group I (1) recipients and one graduate student who placed 3rd at the Institute of Food Technologists food product development competition.

B. Areas for Improvement

Faculty numbers. Faculty positions have not grown sufficiently to meet student demand in the nutrition area nor to meet the needs for increased research dissemination.

Technical Support. With increasingly sophisticated instruments and increased research compliance issues, our needs for technical support to enhance faculty research productivity are critical.

Student Diversity. Our student diversity has been increased through several competitive USDA grants aimed at recruiting Native American students; however, faculty time is needed to continue to compete for these grants and to maintain these student numbers. In addition, Hispanic and blacks are poorly represented in our department. Good students need to be recruited from these groups.

Infrastructure for Placement of Students in Pre-professional Programs. The numbers of students outside of dietetics selecting Nutritional Sciences as a pre-professional major has increased more than five-fold during this program review period. Placement of our graduates has been excellent, but each year's class has expanded dramatically. Careful advising is needed to guide these students as they develop their college experiences to produce a well-rounded attractive applicant for professional programs.

Support for Undergraduate Student Research Experiences. We have many students that seek research experiences. At the present time, our technical support staff is too small to be able to accommodate this demand. These students are among the brightest and are potential candidates for doctoral programs; we may be missing an important opportunity to enhance their educational experiences.

Student Recruitment. The numbers of domestic students seeking doctoral degrees in Nutritional Sciences needs to grow.

Electronic Communication. Most of our graduate inquiries and many from undergraduate as well come from students who sought information about our program from the web. It is urgent that the university act rapidly to facilitate departmental and college efforts to improve our electronic marketing.

Extramural Support. The numbers and amounts of externally funded grants must be increased to support the growth we aspire to have in our graduate program and for national and international recognition.

External Relations. Improved visibility, recognition, and state support for the program are needed. Faculty also need to seek meaningful outreach opportunities that can enhance programs of instruction and research.

OSU-Tulsa. If the university wishes for the department to respond to the student demand at OSU-Tulsa, resources must be provided to allow development of a high-quality program.

C. Recommendations for Action

Faculty Numbers. Seek new faculty positions to reflect the growth in undergraduate student numbers from 117 to 305. Seek funding for additional expanded laboratory space for these new positions.

Student Diversity and Recruitment. Recruit and retain undergraduate and graduate students from diverse backgrounds. Web page redesign to highlight our graduate programs and core areas for undergraduate programs.

Use technology to increase strengthen educational opportunities.

Extramural Support : Increase extramural support in core areas. Increase inter- and intradisciplinary research efforts to garner more large grants that will bring greater recognition to the NSCI program. Increase NSCI private support through development; continue with targeted fund raising campaigns

External Relations: Continue to strengthen NSCI alumni [and friends] involvement and increase the use of the advisory group.

D. Five-Year Goals for the Program

Goal One: To create for NSCI students a collegial environment that encourages excellence, prepares for professional careers, enriches personal growth, fosters discovery of knowledge and promotes leadership development.

Goal Two: To develop a learning environment for NSCI faculty and staff that fosters creativity and problem solving through the discovery, dissemination and application of knowledge.

Goal Three: To generate resources in support of NSCI's mission through sponsored programs, fundraising, and engagement with the broader community.

Goal Four: To strengthen community engagement for the enhancement of human and economic development.

Appendix A
Department of Nutritional Sciences Degree Programs

Dietetics
Foods and Nutrition
Human Nutrition/Pre-medical Sciences
Master of Science

Appendix B

Didactic Program in Dietetics Site Visit Report