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| For Academic Affairs and Research Use Only |
| Proposal Number |  |
| CIP Code:  |  |
| Degree Code: |  |

**NEW OR MODIFIED COURSE PROPOSAL FORM**

**[ ] Undergraduate Curriculum Council**

**[X] Graduate Council**

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| **[X]New Course, [ ]Experimental Course (1-time offering), or [ ]Modified Course (Check one box)** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

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| JoAnna Cupp 1/8/2021**Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**COPE Chair (if applicable)** |
| JoAnna Cupp 1/8/2021**Department Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Head of Unit (if applicable)**   |
| Shanon Brantley 02/02/2021**College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Undergraduate Curriculum Council Chair** |
| Mary Elizabeth Spence 1/11/2021**Office of Assessment (new courses only)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Graduate Curriculum Committee Chair** |
| \_\_Susan Hanrahan 2/1/21\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**College Dean** | \_\_\_\_\_Alan Utter\_\_\_\_\_\_\_\_\_\_\_ 2/26/21**Vice Chancellor for Academic Affairs** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**General Education Committee Chair (if applicable)**   |  |

1. **Contact Person (Name, Email Address, Phone Number)**

JoAnna Cupp, jcupp@astate.edu, 870-680-8295

1. **Proposed starting term and Bulletin year for new course or modification to take effect**

Spring 2024; bulletin year fall 2022

**Instructions:**

*Please complete all sections unless otherwise noted. For course modifications, sections with a “Modification requested?” prompt need not be completed if the answer is “No.”*

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|  | **Current (Course Modifications Only)** | **Proposed (New or Modified)** *(Indicate “N/A” if no modification)* |
| **Prefix** |  | **NS** |
| **Number\*** |  | **6243** |
| **Title** |  | **Metabolic Nutrition** |
| **Description\*\*** |  | **Advanced study of macronutrient and micronutrient metabolism and function in human health, especially factors that affect dietary requirements.** |

 ***\**** (Confirm with the Registrar’s Office that number chosen has not been used before and is available for use. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

\*\*Forty words or fewer as it should appear in the Bulletin.

1. **Proposed prerequisites and major restrictions** **[Modification requested? Yes/No]**

(Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. **Yes** Are there any prerequisites?
	1. If yes, which ones?

Admission to the Master of Science in Nutrition and Dietetics program HP 5113 Leadership in Health Professions NS 6263 Advanced Medical Nutrition Therapy NS 6303 Nutrition and Dietetics Research STAT 6833 Biostatistics

* 1. Why or why not?

 The curriculum in the MSND program is lock step as part of an accredited program requiring a Master’s degree with sequential and logical progression of courses. Students must complete previous semester of graduate courses before progressing to subsequent semesters.

1. **Yes** Is this course restricted to a specific major?
	1. If yes, which major? Nutrition and Dietetics in the Master of Science in Nutrition and Dietetics program
2. **Proposed course frequency [Modification requested? Yes/No]**

(e.g. Fall, Spring, Summer; if irregularly offered, please indicate, “irregular.”) *Not applicable to Graduate courses.*

N/A

1. **Proposed course type [Modification requested? Yes/No]**

Will this course be lecture only, lab only, lecture and lab, activity (e.g., physical education), dissertation/thesis, capstone, independent study, internship/practicum, seminar, special topics, or studio? Please choose one.

Lecture only

1. **Proposed grade type [Modification requested? Yes/No]**

What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])

Standard letter

1. **No** Is this course dual-listed (undergraduate/graduate)?
2. **No** Is this course cross-listed?

*(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross-listed course.)*

**a.** – If yes, please list the prefix and course number of the cross-listed course.

 Enter text...

 **b.** – **Yes / No** Can the cross-listed course be used to satisfy the prerequisite or degree requirements this course satisfies?

 Enter text...

1. **Yes** Is this course in support of a new program?

a. If yes, what program?

 Master of Science in Nutrition and Dietetics

1. **No** Will this course be a one-to-one equivalent to a deleted course or previous version of this course (please check with the Registrar if unsure)?

a. If yes, which course?

Enter text...

**Course Details**

1. **Proposed outline** **[Modification requested? Yes/No]**

(The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

 I. Carbohydrates and fiber

Week 1 Overview/review

 Carbohydrates types and characteristics

 Carbohydrate intake, food sources and recommendations

 Digestion and absorption

 Major hormones in carbohydrate metabolism

 Insulin and glucagon

 Epinephrine

 Cortisol

Week 2 Major metabolic pathways for carbohydrate

 Glycolysis

 Glycogen turnover

 Pentose phosphate pathway

 Krebs cycle

 Intestinal brush-border enzyme deficiencies

 Crohn’s disease and celiac disease

 Lactose intolerance

 Infant disorders of carbohydrate metabolism

Week 3 Dietary fiber for health and digestion

 Soluble and insoluble fiber

 Dietary fiber types and characteristics

 Health benefits of fiber and structural carbohydrates

 Daily intake and recommendations

 II. Lipids and lipoproteins

Week 4 Dietary lipids

 Food sources

 Dietary lipid requirements

 Digestion of lipids

 Health implication and lipid levels

 Alcohol and liver disease

 Current lipid topics

 Fat substitutes in the diet

 Trend of fat consumption in the US

 Linoleic acid and the incidence of obesity

 Determination of risk for a cardiac event

 Nutritional genomics and cardiovascular disease

 Disorders of fatty acid oxidation

Week 5 Mediterranean diet versus Dash diet

 III. Proteins and amino acids

Week 6 Review before class: amino acids, protein structures, digestion/absorption

 and roles in metabolism , protein requirements

 Metabolism of amino acids

 Amino acid inborn errors of metabolism

 Phenylketonuria (PKU)

 Maple syrup urine disease (MSUD)

 Branched chain amino acid (leucine) related to body composition and obesity

 Protein quality, excess and deficiency

Week 7 Case study work on related topics: food insecurity, phenylketonuria, aging adult, athlete,

 branched chain amino acid supplements, high protein diets for weight loss etc.

 IV. Water

Week 8 Water balance

 Assessment of hydration status

 Dehydration

 Edema

 Food and water safety

 Disaster planning

 *Bottled water project*

 Standards of Professional Practice in area of Healthy Food and Water Systems

 Academy of Nutrition and Dietetics resources

Weeks 9 – 14 Student reports/presentations on fat-soluble & water-soluble vitamins, major & minor minerals

Topical content for each vitamin or mineral presentation includes:

 Food sources

 Digestion, absorption, transport and excretion

 Factors that affect bioavailability and absorption

 Functions and roles in the body

 Interrelationships with other nutrients

 Recommended levels of nutrient intake

 Dietary requirements

 At-risk groups

 Benefits and risks of supplements

 Deficiencies and toxicities

 Signs and symptoms

 Causes and prevalence

 Treatment

 V. Fat-soluble vitamins

Week 9 Vitamin A and carotenoids, Vitamin D, Vitamin E, Vitamin K

 VI. Water-soluble vitamins

Week 10 Vitamin C, Thiamin, Riboflavin, Niacin

Week 11 Vitamin B6, Folic acid, Vitamin B12, Biotin, Pantothenic Acid

 VII. Major minerals

Week 12 Calcium, Phosphorus, Magnesium, Sodium

Week 13 Chloride, Potassium

 VIII. Minor minerals

 Iron

Week 14 Zinc, Iodine, Copper, Selenium

 IX. Dietary supplements

Week 15 FDA definition

 Supplement trends

 Multivitamin-mineral (MVM) supplements/efficacy

 Antioxidant supplements

 Dietary supplement regulation

 Assessment of dietary supplement use in clients/patients

1. **Proposed special features** **[Modification requested? Yes/No]**

(e.g. labs, exhibits, site visitations, etc.)

None

1. **Department staffing and classroom/lab resources**

It is projected that two faculty, one 9-month and one 12-month, will be needed to cover this course and others in the mandatory graduate program. NS 6243 is offered face-to-face class so one classroom will be necessary; no lab space is required.

1. Will this require additional faculty, supplies, etc.?

See note on faculty above.

1. **No** Does this course require course fees?

 *If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Justification**

**Modification Justification (Course Modifications Only)**

1. Justification for Modification(s)

Enter text...

**New Course Justification (New Courses Only)**

1. Justification for course. Must include:

 a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

 A specialized course focused on macro- and micro-nutrients, aka metabolic nutrition, provides core knowledge that registered dietitian nutritionists (RDNs) must possess. The background is essential to providing optimal and appropriate nutrition care for patients in many settings. The content is covered in the undergraduate curriculum, but a graduate course is necessary to elevate the level of required knowledge and competency. Course goals – upon completion of this course, students are able to: apply knowledge of macro- and micro-nutrients to popular and emerging topics related to medical nutrition therapy, consumer health, wellness and lifestyle management; evaluate supplement use in patients/clients and recommend dietary supplements as appropriate.

b. How does the course fit with the mission of the department? If course is mandated by an accrediting or certifying agency, include the directive.

 The course fits with the department mission to provide quality education and experiences for students in the field of nutrition and dietetics. Certainly, core knowledge of food science, nutrient metabolism and dietary requirements is included in a quality graduate education. In addition, there are two directives from the Accreditation Council for Education in Nutrition and Dietetics (ACEND), the accrediting agency for the Academy of Nutrition and Dietetics, related to the topic of metabolic nutrition and required curriculum components: **Standard 3.1** The program’s curriculum must be designed to ensure the breadth and depth of requisite knowledge and skills needed for entry-level practice as a registered dietitian nutritionist. **a.** The program’s curriculum must include the following required components, including prerequisites: 6. **Role of environment, food, nutrition and lifestyle choices in health promotion and disease prevention**; 12. **Food science** and food systems, environmental sustainability, global nutrition, techniques of food preparation, and **development, modification and evaluation of recipes, menus and food products acceptable to diverse populations**; 13. **Organic chemistry, biochemistry, anatomy, physiology**, genetics, microbiology, **pharmacolog**y, statistics, logic, **nutrient metabolism, integrative and functional nutrition and nutrition across the lifespan.** [1-5, 7–11,14-15; Other unrelated components] **b.** The program’s curriculum must prepare students with the following core knowledge and competencies: Domain 1. Scientific and Evidence Base of Practice: Integration of scientific information and translation of research into practice; Domain 2. Professional Practice Expectations: Beliefs, values, attitudes and behaviors for the professional dietitian nutritionist level of practice; Domain 3. Clinical and Customer Services: Development and delivery of information, products and services to individuals, groups and populations; Domain 4. Practice Management and Use of Resources: Strategic application of principles of management and systems in the provision of services to individuals and organizations. The NS 6243 Metabolic Nutrition course supports Domains 1, 2, 3 and 4, as far as competencies which the students meet during the graduate program.

c. Student population served.

NS 6243 serves students who are on track to become registered dietitian nutritionists (RDNs), as mandated by accreditation.

d. Rationale for the level of the course (lower, upper, or graduate).

The graduate level of the course is appropriate as students must have a baccalaureate degree in order to enroll in the Nutrition and Dietetics program as they seek an advanced educational experience.

**Assessment**

**Assessment Plan Modifications (Course Modifications Only)**

1. Do the proposed modifications result in a change to the assessment plan?

 *If yes, please complete the Assessment section of the proposal*

**Relationship with Current Program-Level Assessment Process (Course modifications skip this section unless the answer to #18 is “Yes”)**

1. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

Program-Level Learning Outcome

Domain 1 – Scientific and Evidence Base of Practice: Integrate scientific information and translation of research into practice, specifically KRDN\* 1.1, CRDN\* 1.4

Domain 2 - Professional Practice Expectations: Exhibit beliefs, values, attitudes and behaviors for the professional dietitian nutritionist level of practice, specifically KRDN\* 2.1

Domain 3 – Clinical and Customer Services: Develop and deliver information, products and services to individuals, groups and populations, specifically KRDN\* 3.2

Domain 4 – Practice Management and Use of Resources: Strategically apply principles of management and systems in the provision of services to individuals and organizations, specifically CRDN\* 4.4

(\*KRDN Knowledge for the Registered Dietitian Nutritionist; \*CRDN Competency for the Registered Dietitian Nutritionist)

The current curriculum map for the Dietetics Program is revised to add the program-level learning outcomes as noted above and the Core Knowledge & Competencies for the RDN (Registered Dietitian Nutritionist) as applicable to the new graduate degree, Master of Science in Nutrition and Dietetics (MSND).

1. Considering the indicated program-level learning outcome/s (from question #19), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

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| **Program-Level Outcome 1 (from question #19)** | Domain 1 – Scientific and Evidence Base of Practice: Integrate scientific information and translation of research into practice |
| Assessment Measure | Outcome CRDN 1.5 Conduct projects using appropriate research methods, ethical procedures and data analysis Direct measure: NS 6303 Research manuscript - 80% of students will receive a grade of B or better, based on the rubric for this course project Indirect measure: NS 6313 Student survey - 100% of students will complete the self-assessment survey pertaining to the research poster and participation in Create@State event  |
| Assessment Timetable | Fall semester, every 3 years, 2023-2024, 2026-2027, 2029-2030 |
| Who is responsible for assessing and reporting on the results? | MSND faculty  |

 *(Repeat if this new course will support additional program-level outcomes)*

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| **Program-Level Outcome 2 (from question #19)** | Domain 2 - Professional Practice Expectations: Exhibit beliefs, values, attitudes and behaviors for the professional dietitian nutritionist level of practice |
| Assessment Measure | Outcome CRDN 2.2 Demonstrate professional writing skills in preparing professional communications Direct measure: NS 6013 LinkedIn profile – 80% of students will receive a letter grade of B or better, based on the rubric for this assignment Indirect measure: Exit survey – 100% of students will complete and submit exit survey regarding degree experience, including feedback on development of professionalism during program enrollment  |
| Assessment Timetable | Fall semester, every 3 years, 2023-2024, 2026-2027, 2029-2030 |
| Who is responsible for assessing and reporting on the results? | MSND faculty  |

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| **Program-Level Outcome 3 (from question #19)** | Domain 3 – Clinical and Customer Services: Develop and deliver information, products and services to individuals, groups and populations |
| Assessment Measure | Outcome KRDN 3.1 Use the Nutrition Care Process to make decisions, identify nutrition-related problems and determine and evaluate nutrition interventions Direct measure: Exit exam – 80% of students will score at least 80% on cumulative exit exam at end of program, indicating among other competencies, an ability to apply knowledge of the Nutrition Care Process Indirect measure: Time to degree/program length – 100% of students will complete degree requirements within 150% of planned program length (1.5 years) as a measure of time to achieve required competencies in the program  |
| Assessment Timetable | Spring, every 3 years 2024-2025, 2027-2028, 2030-2031 |
| Who is responsible for assessing and reporting on the results? | MSND faculty  |

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| **Program-Level Outcome 4 (from question #19)** | Domain 4 - Practice Management and Use of Resources: Strategically apply principles of management and systems in the provision of services to individuals and organizations |
| Assessment Measure | Outcome CRDN 4.2 Perform management functions related to safety, security and sanitation that affect employees, customers, patients, facilities and food Direct measure: Program one-year pass rate – 80% of students will pass the national Commission on Dietetic Registration (CDR) credentialing exam within one year of first attempt Indirect measure: Alumni survey – 80% of students will respond to alumni survey one-year post graduation to provide qualitative data on Domain 4 competencies met during program experience |
| Assessment Timetable | Spring, every 3 years 2024-2025, 2027-2028, 2030-2031 |
| Who is responsible for assessing and reporting on the results? | MSND faculty  |

 **Course-Level Outcomes**

1. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

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| **Outcome 1** | KRDN 1.1 Demonstrate how to locate, interpret, evaluate and use professional literature to make ethical, evidence-based practice decisionsCRDN 1.4 Evaluate emerging research for application in nutrition and dietetics practiceKRDN 2.1 Demonstrate effective and professional oral and written communication and documentationKRDN 3.2 Develop an educational session or program/educational strategy for a target populationCRDN 4.4 Apply current nutrition informatics to develop, store, retrieve and disseminate information and data |
| Which learning activities are responsible for this outcome? | Prepare and present to class required content on assigned topic related to fat- and water-soluble vitamins or major and minor minerals. |
| Assessment Measure  | 80% of students will receive a letter grade of B or higher on the class presentation, based on the assignment guidelines and rubric, to meet this outcome. |

*(Repeat if needed for additional outcomes)*

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Please include a before (with changed areas highlighted) and after of all affected sections.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  |

Insert after Nursing and before Occupational Therapy on page 382-383

***NS 6243. Metabolic Nutrition Advanced study of macronutrient and micronutrient metabolism and function in human health, especially factors that affect dietary requirements. Restricted to Nutrition and Dietetics graduate students. Prerequisites, HP 5113, NS 6263, NS 6303, and STAT 6833.***