



Center for Clinical and Translational Science

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April 17, 2011

Elliot Slotnick, Associate Dean
Graduate School
250D University Hall

Dear Dr. Slotnick,

Please accept this application for the semester conversion of our Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science. The purpose of this Specialization is to offer advanced educational and training opportunities in the Core Competencies focused on clinical and translational science. The Specialization allows both graduate and professional students an opportunity to gain specific expertise in both clinical and translational research.

The original application was modified to develop the conversion application in collaboration with each unit whose courses are included in the program including the Colleges of Medicine, Optometry, Dentistry, Nursing, Public Health, and Veterinary Medicine, the School of Allied Medical Professions, and the Biophysics Graduate Program. A coordinating committee, chaired by Dr. Binkley, representing each of these Colleges/Schools has been developed and will continue to monitor the program and make refinements, as necessary. A Program Manager in the Center for Clinical and Translational Science will provide administrative support to the program.

The semester conversion designation for this GIS is "converted" meaning there are "minimal changes to program goals and/or curricular requirements". Included with this conversion application are a program rationale statement; list of semester courses; semester/quarter advising sheet (same sheet used for both); the transition policy, and letters of support from each of the units whose courses are included in the program.

Please do not hesitate to contact me if you have any questions regarding the application.

Sincerely,

A handwritten signature in black ink that reads "Philip F. Binkley, MD, MPH".

Philip F. Binkley, MD, MPH
Wilson Professor of Medicine
Associate Director for Education the Division of Cardiovascular Medicine
Vice Chair for Academic Affairs the Department of Internal Medicine
The Ohio State University College of Medicine
Professor of Epidemiology
The Ohio State University College of Public Health

Graduate Interdisciplinary Specialization in Biomedical Clinical and Translation Science

Rationale

Major concerns have been expressed at the perceived loss of talent in translational and clinical sciences over the past 25 years. Basic science leaders note increasing difficulty in finding talented, high-quality scientific collaborators who understand human disease and can both translate and clinically apply insights from basic science. However, exploding clinical services responsibilities and shrinking financial margins at academic health institutions have limited protected research time and curtailed the mentoring of young investigators [1]. Additionally, the National Center for Research Resources (NCRR) has developed 14 Core Competencies (see below) in Clinical and Translational Research that they have determined as critical in the training of future researchers. In an effort to help close the gap of trained clinical and translational scientists and provide a coordinated academic curriculum in the Core Competencies, a new Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science (GISBCTS) is proposed.

The GISBCTS is a program that the Colleges of Medicine, Optometry, Dentistry, Nursing, Pharmacy, Public Health, and Veterinary Medicine, the School of Allied Medical Professions, the Department of Psychology, and the Biophysics Graduate Program at OSU have developed to provide training for graduate and professional students. The goal of GISBCTS is to prepare students to be actively engaged in the field of clinical and translational science through academic training and research. The GISBCTS offers students advanced educational and training opportunities in the Core Competencies focused on clinical and translational science. The program allows graduate and professional students an opportunity to gain specific expertise in both clinical and translational research through both required and elective coursework. The specialization's core course focuses on the basic components of clinical and translational science, while the electives allow students to pursue topics across the other health sciences colleges for an interdisciplinary experience. Students are exposed to a broad range of settings and must successfully complete at least 12 semester credit hours of course work from the Master List of Courses in order for the Specialization to be noted on their transcript.

Objectives of the Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science

Students will:

- Develop skills in designing clinical and translational research studies.
- Apply statistical procedures to clinical and translational research problems
- Develop skills for the communication of the scientific concepts and research questions in one's own discipline to experts in other disciplines and to the public at large
- Understand how to involve the community in clinical and translational research
- Build interdisciplinary/intradisciplinary/multidisciplinary teams to study clinical and translational research issues.

Specialization Guidelines

- Students must be enrolled in a graduate or professional program at OSU
- Units needed to complete the GISBCTS require at least 5 courses and 12 semester credit hours minimum.

- At least 10 credit hours of coursework must come from outside the student's home college/program
- Credit hours can include work already required as part of the student's degree program

Curriculum Requirements

- All students enrolled in the GISBCTS must take PUBHEPI 6413.01 Basic Principles in Clinical and Translational Science (1 unit) or PUBHEPI 6413.02 Conducting and Communicating Research in Clinical and Translational Science (1 unit). This is a 1 credit hour course offered each semester by the College of Public Health. It is recommended, but not required, that this course be taken first.
- Some of the participating colleges have internal procedures that are required to enroll in their courses. Please see each course for specific information about enrolling
- Students must take at least one course from each of the Core Competency Clusters. The Competency Clusters are based on the NCRR Core Competencies for Clinical and Translational Research. There are a total of 14 competencies that have been grouped together to form four clusters.

Core Competencies

- I. Identify major clinical/public health problems and relevant translational research questions.
- II. Identify/interpret/critique literature/assess state of knowledge regarding problem.
- III. Design and write protocol for clinical/translational research study for peer review (Study Design)
- IV. Study Methods/Design/Implementation (Research Implementation)
- V. Laboratory, Clinical, and Population Research Methods (Sources of Error)
- VI. Statistical Methods and Analysis
- VII. Informatics
- VIII. Conduct Ethically Responsible Research
- IX. Scientific Communication Skills and Dissemination (Scientific Communication)
- X. Population Diversity and Cultural Competency (Cultural Diversity)
- XI. Translational Teamwork
- XII. Leadership and Professionalism
- XIII. Cross-disciplinary Training and Mentoring
- XIV. Community Engagement

Competency Clusters

Research Methods (I, II, III, IV, VIII)	Analysis, Statistics, and Informatics (V, VI, VII)	Community and Communication (IX, X, XIV)	Leadership and Training (XI, XII, XIII)
IBGP 8050: Research Techniques & Resources (4)	Nursing 8781: Research Methods II (3)	AM 7888: Grand Rounds (2 units)	Nursing Practice 8401: Strategic Macrosystem Management for the Doctor of Nursing Practice (3)

Research Methods (I, II, III, IV, VIII)	Analysis, Statistics, and Informatics (V, VI, VII)	Community and Communication (IX, X, XIV)	Leadership and Training (XI, XII, XIII)
Nursing 8780: Research Methods I (3)	Nursing 8782: Research Methods III (4)	IBGP 7070: Fundamentals of Grant Writing I (2)	
Nursing Practice 8780: Clinical Effectiveness and Translation in Clinical Science (3)	PUBHBIO 6210: Design & Analysis of Studies in the Health Sciences I (3)	IBGP 7080: Fundamentals of Grant Writing II (2)	
PUBHEPI 7412: Principles and Procedures for Human Clinical Trials (3)	PUBHBIO 6211: Design & Analysis of Studies in the Health Sciences II (3)	Nursing 710: Health Literacy	
PUBHHBP 7532: Program Evaluation (3)	PUBHBIO 7245, Biostatistical Collaboration (2)	PUBHHBP 7520: Community Health Assessment (3)	
PUBHHBP 7534 Research Methods in Health Behavior and Health Promotion (3)	Psych 6810: Statistical Methods in Psychology I (4)	PUBHHBP 7544: Fundamental Determinants of Population Health and Implications for Public Health Research and Practice (3)	
PUBHHBP 7522: Program Planning and Implementation (3)	Psych 6811: Statistical Methods in Psychology II (4)	PUBHHBP 7558: Social Ecological Strategies in Prevention (3)	
PUBHHMP 8671, Health Care Outcomes Measurement (1)	Stat 5301: Intermediate Data Analysis I (4)	Vis Sci 7400: Scientific Communication (2)	
PUBHHMP 7678, Approaches to Health Services Research (3)	Stat 5302: Intermediate Data Analysis II (3)	Vis Sci 7970: Grantsmanship (2)	
Vis Sci 7960: Ethics in Biomedical Research (2)			
Vis Sci 7990: Assessing the Literature (0.5-2)			

How to Enroll:

The Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science is available to all graduate and professional students at The Ohio State University. Students must apply to enroll in the Specialization in Biomedical Clinical and Translational Science (see application form below), must follow the criteria developed by the Graduate School, and successfully complete the required and elective course work specified.

Students should work with their departmental advisor to determine how best to incorporate the Specialization into their program of study. The advisor's signature is required prior to submission of the application to the Center for Clinical and Translational Science, which

supports the administrative aspects of the Specialization.

At least 12 semester credit hours of graduate course work from the Master List of Courses are required including the core course and at least one course from each of the four Core Competency clusters.

Once student and advisor signatures are affixed, the original form should be forwarded to Stephanie Vecchiarelli in the Center for Clinical and Translational Science at the address below. Each application that meets the admissions criteria will be forwarded to the Graduate Studies Committee (GSC) for final admissions decisions. Once the GSC has made a decision, the student will be notified.

The student must adhere to the curriculum for the Specialization in Biomedical Clinical and Translational Science. If changes in the approved curriculum are made, the student must complete a new Graduate Interdisciplinary Specialization Program Form and once again gain approval.

Stephanie Vecchiarelli, Program Manager
Center for Clinical and Translational Science
Research Education, Training, and Career Development
The Ohio State University
Prior Health Sciences Library, Suite 205
376 West 10th Avenue
Columbus, Ohio 43210
Phone: 614-293-2356
Fax: 614-293-4039
Ccts-education@osumc.edu

The Application

Students must apply to enroll in the GISBCTS through the Research Education, Training, and Career Development Program in the Center for Clinical and Translational Science. To apply, a student must be in good academic standing and do the following:

1. Complete the application form and have it signed by the faculty advisor.
2. Obtain a letter of support from the faculty advisor.
3. Submit a personal statement that indicates why he/she is interested in the Specialization, and how the Specialization will contribute to their future academic and/or career goals.

Application deadline: Applications will be accepted on a rolling basis.

It is expected that all students who meet the criteria and follow the application guidelines will be accepted into the GISBCTS. There will not be a cap to the number of students admitted to the program.

GISBCTS Management
Graduate Studies Committee

Membership: The GISBCTS GSC will be composed of Graduate Studies Chairs, faculty representatives, and student representatives from the Colleges/Departments participating in the GISBCTS. As new disciplines are included in the GISBCTS, a representative from the College/Department will be added. If a committee member chooses to resign from the committee, another member from the same College/Department will be selected. This committee currently has the following membership:

- Philip Binkley, MD, MPH, CCTS/College of Medicine/College of Public Health, Chair
- Karla Zadnik, DO, PhD, College of Optometry, Co-chair
- Jane Case Smith, EdD, School of Allied Medical Professionals
- Virginia Sanders, PhD, College of Medicine
- Anil Pradhan, PhD, Department of Astronomy
- Amy Ferketich, PhD, College of Public Health
- Linda Bernhard, PhD, College of Nursing
- Cynthia Carnes, PharmD, PhD, College of Pharmacy
- John Sheridan, PhD, College of Dentistry

Dr. Binkley will chair the committee and serve as the liaison between the CCTS and GSC. Dr. Karla Zadnik will serve as the co-chair of the committee.

Role: The GISBCTS Graduate Studies Committee (GSC) has been responsible for designing the program and detailing the courses that will be offered in the GISBCTS. Ongoing, this committee will serve to monitor the progress of the academic program and make refinements, as necessary.

- Curriculum: It is expected that additional courses and/or Colleges/Departments will be added to the GISBCTS. The GSC will make recommendations and approve adding or removing courses from the GISBCTS curriculum.
- Admissions: In addition to curriculum decisions, the GSC will oversee admissions procedures. They will make recommendations and decisions on any changes to the admissions process. Additionally, they will make final decisions on admission recommendations for all students who apply to the program. The GSC also will make decisions regarding ongoing enrollment for students who do not adhere to the GISBCTS curriculum.

In addition to curriculum and admissions duties, each committee member will serve as liaisons to their respective Colleges/Departments and the GISBCTS. They will promote the program as well as respond to staff and student inquiries.

Administrative Support

A Program Manager in the CCTS will provide administrative support to the program, as needed, including coordinating the application process and answering student inquiries. Specific academic questions will be referred to the GSC co-chairs, as needed.

Core Course:

Course: PUBHEPI 6413.01 Basic Principles in Clinical and Translational Science (1 unit) OR

PUBHEPI 6413.02 Conducting and Communicating Research in Clinical and Translational Science (1 unit)

Semester: AU, SP

Instructor: Philip Binkley, MD, PhD

****Please note that this is a required course for the Graduate Interdisciplinary Specialization in Clinical and Translational Science.****

Students need to enroll in the GISBCTS program before trying to register for this class as it requires instructor permission. Once you have enrolled in the GISBCTS program your name will be given to the instructor and you will be permitted to register.

This course series will provide a broad overview of the NCRR Core Competencies as well as be a major focus for interaction among all of the students from diverse academic backgrounds. The seminar will allow students pursuing different emphasis areas in clinical and translational science to design transdisciplinary research programs or solutions to a specific biomedical research questions.

Master List of Courses:

Information related to specific course offerings was obtained directly from departments and course instructors and may change during the academic year. Please check with the Center for Clinical and Translational Science at 293-2356 (or [e-mail](#)) to be sure specific courses will be offered as indicated.

AM 7888: Grand Rounds

Faculty and graduate students present and discuss their current research programs. Students read research reports and write an analysis/reflection about each presentation. The seminar provides an excellent format for analysis and discussion of current research across health and rehabilitation topics. It is also an opportunity for PhD students to present their research in a safe environment to an engaged audience.

(AU, SP; 2 units)

IBGP 7070: Fundamentals of Grant Writing 1

The overall goal of this course and its sequel (Fundamentals of Grant Writing-II) is to provide graduate students with the background information for, and practical experience in writing research grant proposals.

(AU; 2; Prereq: Instructor permission)

IBGP 7080: Fundamentals of Grant Writing II

The educational goal of this course is to provide graduate students with the background information for, and practical experience in reviewing research grant proposals. As Fundamentals of Grant Writing-2 is a sequel of Fundamentals of Grant Writing-1, at the beginning of this course students will already have a general idea about the administrative structure and process of grant reviewing, and will have submitted their grant application to the coordinators of the course. During this interactive mock review process the graduate students will review grant applications and learn to be critical, objective, and fair. They will write

reviews for three grant applications and score them. They will learn to express their scientific ideas and knowledge and participate in a scientific debate. They will have to make difficult and sometime painful decisions, and they will learn to overcome the psychological impact of the "summary statement". Finally, they will be exposed to the electronic grant application submission and review as the NIH moves in this direction. At the end of the course, graduate students will have had a real life experience, and will be better prepared for the competitive field of research funding.

(SP; 2; Prereq: Instructor permission)

IBGP 8050: Research Techniques & Resources

This course was designed to prepare the students for their laboratory rotations and dissertation research by covering three general areas: (1) Laboratory safety; (2) Commonly used laboratory techniques; (3) Research resources available to the students.

(SU; 4; Must register for both labs and lectures)

Nursing 710: Health Literacy

Examine and analyze issues of low health literacy, including populations at risk, research, measurement tools, writing in plain language; health communication techniques; and organizational approaches.

(AU, SP; 3; Prereq: Graduate student in Health Professions)

Nursing 8780: Research Methods I

Survey of quantitative, qualitative and mixed methods approaches relevant to nursing and health. Emphasis is placed on common research designs in nursing and health research.

Course Content

- Introduction to research
- Overview of quantitative and qualitative research paradigms
- Introduction to research design (experimental versus observational)
- Commonly-used experimental designs in nursing and health-related research
- Commonly-used quasi-experimental designs in nursing and health-related research
- Commonly-used observational designs in survey and population health research
- Case-control and cohort study designs
- Qualitative research paradigms and approaches
- Integration of qualitative and quantitative paradigms

(SP; 3; Prereq: Instructor permission)

Nursing 8781: Research Methods II

Survey of quantitative, qualitative and mixed methods approaches relevant to nursing and health. Emphasis is placed on common measurement and sampling in nursing and health research.

Course Content:

- Introduction to Measurement
- Reliability
- Validity
- Introduction to Sampling
- Sampling, procedures, measurement and analysis in:

- Experimental and quasi-experimental designs
- Case-control and cohort study designs
- Survey designs
- Qualitative designs
- Mixed methods

(SP; 3; Prereq: Nursing 912 or instructor permission)

Nursing 8782: Research Methods III

Integration and application of theoretical and measurement approaches applied at micro-, meso- and macro-levels in nursing and health research. Emphasis is on selected measures of individual and population health.

(AU; 4 credit seminar; optional 2 credit lab; Prereq: Instructor permission)

Nursing Practice 8401: Strategic Macrosystem Management for the Doctor of Nursing Practice

Integration of theoretical, technological, leadership and communication principles to design management strategies for evidenced based practice approaches to improve health care to selected populations.

(SP; 3; Prereq: Enrollment in Doctor of Nursing Practice program or instructor permission)

Nursing Practice 8780: Clinical Effectiveness and Translation in Clinical Science

Theory and survey of methods of critical appraisal of clinically relevant nursing research related to clinical effectiveness and translational science. Emphasis is placed on the systematic appraisal and utilization of clinical knowledge.

(SP - Distance learning; 3; Prereq: Instructor permission)

PSYCH 6810: Statistical Methods in Psychology I

Basic concepts of descriptive and inferential statistics; includes estimation, hypothesis testing, non-parametric techniques, and analysis of variance.

(4; Prereq: Permission of instructor)

PSYCH 6811: Statistical Methods in Psychology II

Simple linear regression and correlation, multiple linear regression, interactions; introduction to other related methods such as nonlinear regression and random effects models.

(4; Prereq: 6810 or equiv)

PUBHBIO 6210: Design and Analysis of Studies in the Health Sciences 1

This course is intended to provide students with comprehensive introduction to the principles of modern biostatistical methods and their applications in biomedical research.

The course will cover material from basic data summary methods to formal statistical analysis on estimation and hypothesis testing, with an emphasis on the understanding of methodologies from statistical inference perspective. Application to real data from various studies in public health and clinic research will be used to illustrate the material.

(AU, SP; 3; Prereq: Instructor permission)

PUBHBIO 6211: Design and Analysis of Studies in the Health Sciences 1I

Fundamental concepts of biostatistical inference will be presented, including categorical data methods, nonparametric statistical testing, analysis of variance designs, and regression methods. All statistical procedures will be integrated with the application of computer statistical packages.

(AU, SP; 3; Prereq: B- or above in PUBHBIO 6210 or instructor permission)

PUBHBIO 7245, Biostatistical Collaboration

This is a five week summer course which will provide an introduction to issues in experimental design and statistical methods appropriate for the basic sciences. Considerable attention will be given to issues which are most relevant to experiments, such as replication, randomization, selection of controls, data transformation, and calibration. Topics will be motivated by real data sets from biological experiments. Since this is a four credit hour course taught over five weeks, students will need to devote approximately 7 hours per week for lecture and should expect to spend between 14-21 hours per week outside of class on assignments.

(SU; 2; Prereq: Instructor permission)

PUBHEPI 7412: Principles and Procedures for Human Clinical Trials

This course presents basic principles and procedures in the design, conduct, and analysis of human clinical investigations (trials). Our intent is to teach basic concepts necessary for the application of human clinical trials in medical research.

(SP; 3; Prereq: Instructor permission)

PUBHHBP 7520: Community Health Assessment

Health educators often are responsible for assessing communities in terms of their resources, needs, and health outcomes. The goal of this course is to help develop the practical knowledge and skills to conduct such assessments and to understand the range of goals of, and approaches to community health assessment.

(SP; 3; Prereq: Grad standing in Pub Hlth or permission of instructor.)

PUBHHBP 7522: Program Planning and Implementation

In this course students will develop the skills required to plan programs that address public health problems for defined populations in a variety of settings. This course will provide students with the opportunity to develop a theory-based, health promotion program that is supported by the literature. In addition, students will learn how to review the literature and deliver a professional presentation.

(SP; 3)

PUBHHBP 7532: Program Evaluation

This course will focus on planning useful program evaluations, with emphasis on meeting the needs of program administrators and planners. Coverage includes process and outcome evaluation questions and methods; qualitative and quantitative data collection approaches; and ethical considerations.

(SP; 3; Prereq: Grad standing in Pub Hlth or permission of instructor.)

PUBHHBP 7534 Research Methods in Health Behavior and Health

This course provides an overview of research methods that are commonly used in public health research. The course will address topics such as selecting a theoretical framework, choosing a research design, conducting observational and experimental research, measurement and sampling issues, program evaluation, basic analytic concerns of observational and experimental research, scientific writing, and study proposal preparation. An important goal of this course is to help students develop the necessary skills to read, critique, design, and conduct high quality scientific research in health behavior and, more broadly, public health.
(SP; 3; Prereq: Grad standing in Pub Hlth or permission of instructor.)

PUBHHBP 7544: Fundamental Determinants of Population Health and Implications for Public Health Research and Practice

An important goal of this course is to help students understand how to use their knowledge of the fundamental determinants of health to address important public health problems. To this end, course lectures will critique how the field of public health currently addresses population health and health disparities. In addition, we will discuss a theoretical framework and methodology to incorporate the social and economic context into public health interventions.
(AU; 3; Prereq: Grad standing in Pub Hlth or permission of instructor.)

PUBHHBP 7558: Social-ecological strategies in prevention

This course will introduce students to the social-ecological approach to prevention in a public health context. Course material will contrast the social-ecological approaches to prevention with individual-based approaches. The historical and current application of this framework will be demonstrated in several areas of public health. This course is intended for CPH students who have an interest in prevention, social-ecological theory or population-based behavior change strategies.
(SP; 3; Prereq: Grad standing in Pub Hlth or permission of instructor.)

PUBHHMP 7678, Approaches to Health Services

This course provides a broad introductory overview to the field of health services research in the United States and the role of health services research in improving health care delivery and, ultimately, the health of Americans.
(SP; 3; Prereq: PUBHBIO 6210 or Instructor permission)

PUBHHMP 8671, Health Care Outcomes Measurement

This course introduces students to measurement and evaluation issues associated with patient-centered pharmaceutical outcomes and quality of care studies, an increasingly important component of present-day pharmaceutical research. The focus will be application of measurements, rather than development. Selected topics that will be covered in this class include development of the discussion of frameworks for evaluation of health outcomes framework and quality of care, outcomes measures, risk adjustment of health outcomes, technical and practical issues with measurement and estimation, and empirical examples of health care outcomes research. Outcome and quality measures that will be covered include generic and condition-specific health status measures, satisfaction, patient trust, and patient adherence.
(1 unit; Prereq: Instructor permission)

Stat 5301: Intermediate Data Analysis I

In this non-calculus based course data collection, analysis, and preliminary statistical inferences are studied. More specifically, the course covers summaries of data, design of experiments, probability, confidence intervals, tests of hypothesis and other statistical inference as time permits. By the end of the course you should be able to design a simple experiment and analyze the data obtained using the statistical methods learnt in class.

(SU, AU, SP; 4; lab hours arranged)

Stat 5302: Intermediate Data Analysis II

Stat 529 and 530 will cover many of the common statistical methods that you will encounter when reading journal articles in your field, or that you will need to analyze data that you have collected. When covering any statistical method, our goal is for you to (1) understand the assumptions of the method and be able to check them, (2) be able to carry out the necessary computations on MINITAB, (3) be able to describe your results using correct statistical "jargon", and (4) be able to interpret the results in a way that is meaningful to others in your field. We will try to accomplish these goals through homework and interactive classroom sessions. The material in 530 relies heavily on the additive model (see the early part of the text for a description of this model), simple linear regression and one-way ANOVA. The course will cover multiple linear regression and ANOVA designs beyond the one-way layout in detail. The goals for the course are for you to (1) understand the key ideas that underlie the models we'll work with, (2) appreciate the importance (and unimportance) of the assumptions that the models are based on, (3) be able to make sound decisions for an analysis, (4) implement formal techniques flawlessly, and (5) summarize an analysis appropriately. With these goals in mind, by the end of the semester, you should be able to design and conduct an experiment of modest size, and you should be able to analyze the data from such an experiment. We will try to accomplish these goals through homework and interactive classroom sessions.

(SP; 3; lab hours arranged; Prereq: STAT 5301 or equivalent)

Vision Science 7400: Scientific Communication

Emphasizes written and oral communication of research, including critiquing papers, writing abstracts, presenting data, and preparing audiovisual materials.

(SU, AU, SP; 2; Prereq: Instructor permission)

Vision Science 7960: Ethics in Biomedical Research

Provides a general understanding of the issues surrounding the ethical conduct of science including issues related to research involving human subjects, scientific misconduct, and authorship of scientific papers. Real-life case studies will be used.

(AU; 2)

Vision Science 7970: Grantsmanship

The structure of the National Institutes of Health, the principles of good grantsmanship, and description of the grant review process. Emphasis focused on Mentored Clinical Scientist Development Award (K23) and Research Project Grant (R01).

(SP; 2; Prereq: Instructor permission)

Vision Science 7990: Assessing the Literature

Students will learn to critically evaluate the literature by participating in discussions of a variety of papers, including but not limited to scientific articles from peer-reviewed journals. A satisfactory/unsatisfactory grade is based solely on participation during class discussions. (SP;0.5- 2; Prereq: Instructor permission)

Zerhouni, E. US Biomedical Research: Basic, Translational, and Clinical Sciences. JAMA. 2005;294(11):1352-8.



**Graduate Interdisciplinary Specialization
Procedures**

Graduate School
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230 North Oval Mall
Columbus, OH 43210
Phone: 614-292-6031
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Email: Jordan.194@osu.edu

GRADUATE INTERDISCIPLINARY SPECIALIZATION PROGRAM FORM

Student Name: _____

OSU Email Address: _____

Name of Graduate Interdisciplinary Specialization: _____

Graduate Interdisciplinary Specialization Program of Study

<u>Department</u>	<u>Course #</u>	<u>Course Title</u>	<u>Credit Hrs.</u>

Student Signature Date

Advisor Signature Date

Graduate Studies Chair in Graduate Interdisciplinary Program Date

Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science Transition Policy

As the University makes the conversion from quarters to semesters, the Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science (GISBCTS) Graduate Studies Committee (GSC) has developed a transition policy to guide the implementation of the GISBCTS during this time. The transition policy will impact those students who are currently enrolled or will enroll prior to Fall 2012 but will not be completed by Fall 2012. For students who complete the GISBCTS requirements prior to Fall 2012, they will continue to follow the GISBCTS program as it is currently approved. For students who enroll in the GISBCTS starting Fall 2012 and beyond, they will follow the revised program recently submitted to the Graduate School for approval.

For students who are currently enrolled or will enroll prior to Fall 2012 but will not be completed by Fall 2012, the following guidelines will apply:

- A minimum of five courses still will be required.
- The core course still will be required. Students taking this course during the quarter system will enroll in one quarter of PH 795: Topics in Clinical and Translational Science. Students taking this course during the semester system will enroll in EITHER PUBHEPI 6413.01 Basic Principles in Clinical and Translational Science OR PUBHEPI 6413.02 Conducting and Communicating Research in Clinical and Translational Science for one semester.
- One course from each of the competency clusters still will be required of all students. As long as students enroll in at least one course from each of the competency cluster areas, they will satisfy this requirement. It is understood some students will likely take some of their coursework under the approved quarter GIS plan and some under the revised semester GIS plan. As students develop their GIS program of study, they will note which courses they will enroll in and when.

It is expected all other application and approval procedures will remain the same for all students, regardless of their enrollment in the GISBCTS.

Support staff in the CCTS will ensure that the proposed plan of study meets the GISBCTS requirements. Once the proposed plan of study is complete, it will be forwarded to the GISBCTS GSC for approval.



College of Public Health

Division of Epidemiology
B-217 Starling-Loving Hall
320 W. 10th Ave.
Columbus, OH 43210

Phone (614) 293-3878
Fax (614) 293-3937

March 22, 2010

Philip F. Binkley, MD, MPH
Wilson Professor of Medicine
Vice Chair for Academic Affairs
The OSU Department of Internal Medicine
Associate Dean for Faculty Affairs
The OSU College of Medicine
Professor of Epidemiology
The OSU College of Public Health

Dear Professor Binkley:

The College of Public Health is happy to support the proposed Graduate Interdisciplinary Specialization (GIS) in Biomedical Clinical and Translational Science. Students in several of the specializations within the MPH, MS, and PhD in public health might find this an appropriate addition to their programs. We also look forward to having students from other colleges enrolled in the Public Health courses that are either required or listed as electives for the Specialization. We look forward to the approval and implementation of your GIS in Biomedical Clinical and Translational Science.

Sincerely,

A handwritten signature in black ink that reads 'Amy K. Ferketich'.

Amy K. Ferketich, Ph.D.
Associate Professor, Division of Epidemiology
Chair, Graduate Studies Committee
The Ohio State University School of Public Health
(614) 293-4387
aferketich@cph.osu.edu



Biophysics Graduate Program

191 West Woodruff Avenue
Columbus, OH 43210-1117

Phone: (614) 292-5626
Fax: (614) 688-3555

March 17, 2010

Dr. Philip Binkley
110 R Davis Heart&Lung Research Inst
473 W 12th Ave
Columbus, OH 43210

Dear Philip,

As one of the two co-directors and as graduate studies committee chair of the Interdisciplinary Biophysics Graduate Program I am writing to you in support of the Graduate Interdisciplinary Specialization in Biomedical Clinical and Translation Science. Given the interdisciplinary nature of our program and your proposed specialization I expect that the new specialization will be an interesting option for those of our students with an inclination to explore clinical applications of their biophysical research. Since we are a small program and since most of our students are focused on fundamental science, I only expect maybe a student every other year or so to choose the interdisciplinary specialization but for these students it will certainly be a very attractive complement to their basic science education in our program.

Yours

A handwritten signature in blue ink that reads "Ralf Bundschuh".

Ralf Bundschuh
Co-director
Biophysics Graduate Program
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fax: +1 (614) 292-7557
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College of Nursing

Newton Hall
1585 Neil Ave
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Dr. Philip Binkley
The Ohio State University
110 R Davis Heart & Lung Research Inst.
473 W. 12th Ave.
Columbus, OH 43210

Dear Dr. Binkley:

I am writing on behalf of the College of Nursing to express our strong support for your proposal for a Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science (GISBCTS). This Specialization will give Nursing and other graduate students the opportunity to engage with students and colleagues from other disciplines to study clinical and translational science. This comes at a time when the Institute of Medicine encourages interprofessional education, and we want to foster opportunities for that to happen. We also are working harder to have research collaborators from multiple disciplines and this specialization will give our students opportunities to find out what that collaboration is like as they advance their careers as scientists and researchers. We expect that some Nursing doctoral students will want to have this specialization.

We are also pleased to contribute several Nursing courses to the specialization and look forward to the stimulation of having students from other disciplines in our courses.

In short, the College of Nursing is fully in support of the GISBCTS, and we look forward to working collaboratively in the future.

Sincerely,

A handwritten signature in cursive script that reads "Linda Bernhard".

Linda Bernhard, PhD, RN
Chair of the Graduate Studies Committee and
Associate Professor
College of Nursing



Department of Statistics

Cockins Hall
1958 Neil Avenue
Columbus, OH 43210-1247

Phone (614) 688-3634
Fax (614) 292-2096
E-mail pfc@stat.osu.edu
Web <http://www.stat.osu.edu/>

Friday 2 July 2010

Dear Stephanie Vecchiarelli, EdD, MPH,

The Department of Statistics supports the proposal for a Graduate Interdisciplinary Specialization in Biomedical Clinical and Translation Science. Given the utility of statistical methods of data analysis in clinical and associated applications, we are excited that our sequence of courses in Data Analysis (Stat 528, 529, and 530) can be part of the Analysis, Statistics, and Informatics cluster in this program.

If you have any further questions, please contact me.

Sincerely,

Peter F. Craigmile, Ph.D.

Chair, Curriculum Committee, Department of Statistics

pfc@stat.osu.edu



College of Optometry

Karla Zadnik, OD PhD
338 West Tenth Avenue
Columbus, OH 43210

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Cell Phone (614) 580-7267
Fax (614) 292-4705
E-mail zadnik.4@osu.edu

March 25, 2010

Philip F. Binkley, MD, MPH
110 R Davis Heart & Lung Research Institute
473 W 12th Avenue
The Ohio State University
College of Medicine
Columbus, OH 43210

Dear Dr. Binkley:

As Associate Dean and Chair of the Graduate Studies Committee for the Graduate Program in Vision Science, I am pleased to pledge my support for the Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science (GISBCTS). I have been involved in the planning of this new Graduate Interdisciplinary Specialization in my capacity as director of the KL2 training program in the Center for Clinical and Translational Science and am excited to see it move forward.

I would anticipate as many as five students per year from either our Graduate Program in Vision Science or our Doctor of Optometry Professional Program enrolling in the GISBCTS.

I hereby grant my permission for the following Vision Science courses to be included in the GISBCTS:

- Vision Science 740: Survival Skills for Graduate Students
- Vision Science 796: Ethics in Biomedical Research
- Vision Science 797: Grantsmanship
- Vision Science 799: Assessing the Literature

I look forward to collaborating with you on this important project.

Sincerely,

A handwritten signature in cursive script that reads "Karla Zadnik".

Karla Zadnik, OD PhD
Associate Dean
Glenn A. Fry Professor in Optometry and Physiological Optics



School of Biomedical Science
Integrated Biomedical Science
Graduate Program
1190 Graves Hall
333 West 10th Avenue
Columbus, Ohio 43210-1239
Phone: 614.292.0857 / Fax: 614.292.6226

Dr. Philip Binkley
110 R Davis Heart & Lung Research Inst
473 W 12th Ave
Columbus, OH 43210

March 16, 2010

Dear Dr. Binkley:

This letter is in regard to the Graduate Interdisciplinary Specialization in Biomedical Clinical and Translational Science (GISBCTS) that you will be submitting to the Graduate School for approval. I would like you to know that the Integrated Biomedical Sciences Graduate Program (IBGP) supports your use of a number of IBGP courses for use by your trainees. The IBGP is in total support of your efforts to promote translational training. As you know, the IBGP has Translational Science as one of its areas-of-research emphasis for transcript designation. Our students in this area-of-emphasis take a number of classes that are targeted primarily to medical students who participate in the independent study program in the College of Medicine. We have one-to-two IBGP students per year who enroll in the Translational area-of-emphasis for transcript designation. These students are likely to also enroll in the cases offered by your program and to apply for trainee funding.

I want you to know that I am fully supportive of your educational plans, particularly because of their interdisciplinary nature. I look forward to working together with you to strengthen the learning environment for many of our trainees.

Best regards,

A handwritten signature in black ink that reads 'Virginia M. Sanders'. The signature is written in a cursive, flowing style.

Virginia M. Sanders, Ph.D.
Professor & Director



Department of Psychology

225 Psychology Building
1835 Neil Avenue
Columbus, OH 43210

www.psy.ohio-state.edu

March 4, 2010

Dr. Philip Binkley
The Ohio State University
110 R Davis Heart & Lung Research Institute
473 W 12th Avenue
Columbus, OH 43210

Re: Graduate Interdisciplinary Specialization in Translational Science

Dear Dr. Binkley:

I am writing to express the support of the Department of Psychology for the proposed Graduate Interdisciplinary Specialization (GIS) in Translational Science. It will provide graduate and professional students in psychology and many other graduate programs important opportunities to gain knowledge and skills vital to conducting interdisciplinary and transdisciplinary translational research. In short, this GIS will be a valuable addition to the graduate programs at the Ohio State University.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. W. Vasey', written over the typed name.

Michael W. Vasey
Professor and Chair of Graduate Studies
Department of Psychology
The Ohio State University
1835 Neil Avenue
Columbus, OH 43210

December 21, 2009

Stephanie Vecchiarelli, EdD, MPH
Research Education, Training, and Career Development Program Manager
OSU Center for Clinical and Translational Science
376 West 10th Ave
205 Prior Health Sciences Library
Columbus, OH 43210

Dear Dr. Vecchiarelli,

The School of Allied Medical Professions Graduate Studies Committee enthusiastically supports the proposal for a Graduate Interdisciplinary Specialization in Translational Science. This specialization aligns well with our PhD program in Health and Rehabilitation Sciences and we would encourage our PHD students to complete the specialization with their degree. Our curriculum is flexible and we can incorporate a number of the courses as alternatives for required coursework so that the students can complete the GISTS without taking extensive additional course credits. We agree that the competencies and core course would provide excellent training to the next generation of translational scientists. In addition to the participation of our students, SAMP faculty agreed to open appropriate courses to students outside Allied Health who would be enrolled in the specialization.

Our program currently has 13 active PhD students and we admit 2-3 per year. It is likely that 1-2 of our students each year would enroll in the specialization, with around 6 in the program at one time. We identified four courses in our PhD program that match the GISTS objectives and appear to be suitable to open to other PhD/graduate students throughout the University. The courses that we can include in the GISTS are listed below and syllabi are attached.

Thank you for this opportunity for our faculty and students to be involved in the Specialization in Translational Science. We fully support this additional training for the School's PhD students. Let me know what additional information you need. We look forward to working with you in the Specialization.

Sincerely,



Jane Case-Smith, Ed.D.
Graduate Studies Chair
School of Allied Medical Professions