INDIANA UNIVERSITY
SCHOOL OF MEDICINE

CELLULAR & INTEGRATIVE PHYSIOLOGY
635 Barnhill Drive
Indianapolis, IN 46202-5120
Tel: 317-278-2146
FAX: 317-278-3318
email: msturek@iupui.edu
pgallag@iupui.edu

MEMORANDUM

DATE: **JULY 21, 2010**

TO: **IUPUI GRADUATE CURRICULUM COMMITTEE**

FROM: **DR. MICHAEL STUREK, CHAIR**

DR. PATRICIA GALLAGHER, GRADUATE PROGRAM DIRECTOR

RE: **REQUEST FOR REVISION OF CURRICULUM FOR MASTER OF SCIENCE DEGREE**

This memorandum is to request approval for a revision of our current MS degree curriculum. Currently our curriculum has two options: one option includes a research component and students enroll in 18 credits of didactic courses as well as 12 credits of research. The second option is for students who only take didactic courses and they take 30 credits of coursework.

The rationale for this request is to provide additional opportunities and flexibility for students seeking to better their credentials for entry into a variety of professional schools including dental, medical, physical therapy, physicians assistant programs or into doctoral programs within the School of Medicine. Our experience with our current curriculum, suggests that some MS degree candidates would greatly benefit from additional instruction in basic physiology, which we intend to provide by requiring F503 Basic Human Physiology. This graduate level course will prepare our MS students for one of the more advanced physiology courses (F735/F736 or F613), which are offered in the spring semester. In parallel with this change and to provide more flexibility as well as address the needs of our student population, we propose several required courses as well as an expanded list of elective courses (see Table 1 below). The proposed courses not only provides flexibility in the program it also allows students to receive instruction in many areas of science that may be of interest to them and will further benefit their career goals. Overall, we believe this modification will better suit the needs of our student audience, by allowing them to enhance their academic credentials as well as complete a rigorous graduate curriculum to earn a Master of Science degree in Cellular & Integrative Physiology. This program revision will still maintain our current option for students to incorporate research into their degree program or alternatively focus only on didactic courses depending on their individual circumstances.

Required Courses:	**Elective Course Options:**
• G717 Cellular Basis of Systems Biology (3 cr) • F503 Basic Human Physiology (3 cr) • F702 Seminar in Physiology (1 cr) • G715 Biochemical Basis of Biological Processes (3 cr) **OR** • B500 Biochemistry (3 cr) ***Plus Either:* G735 & G736 *OR* F613** • G735 Cardiovascular, Renal and Respiratory Function in Health and Disease (2 cr) **AND** • G736 Endocrine & Gastrointestinal Function in Health and Disease(1 cr) ***OR*** • F613 Medical Physiology (5 cr)	F780 Special Topics In Physiology (3 cr) G640 Epithelial Cell Biology (1 cr) G651 Introduction to Biostatistics (3 cr) G655 Research Communication Seminar (1 cr) G703 Physiology of Coronary Circulation (1 cr) G704 Physiological Proteomics (1 cr) G706 Designer Mice (1 cr) G707 Physiology of Smooth Muscle (1 cr) G708 Cardiac & Coronary Physiology of Exercise (1 cr) G712 In vivo Microvascular Studies (1 cr) G713 Angiogenesis (1 cr) G714 Development of Vascular System (1 cr) G716 Molecular Biology & Genetics (3 cr) G720 Stem Cell Biology (1 cr) G724 Molecular Cancer Genetics G725 Gene Transfer Approaches (1 cr) G726 Developmental Genetics (1 cr) G727 Animal Models of Human Disease (1 cr) G728 Fundamentals of Infection and Pathogenesis (1 cr) G729 Immunology I – Introduction to Immune System (1 cr) G733 Introduction to Biological Microscopy (1 cr) G734 Advanced Molecular Imaging (1 cr) G737 Introduction to Histology (1 cr) G743 Fundamentals of Electrical Signaling and Ion Channel Biology (1 cr) G744 Neuropharmacology of Synaptic Transmission (1 cr) G745 Fundamentals of Intracellular Signal Transduction (1 cr) G746 Chromosome Instability and Disease (1 cr) G747 Principles of Pharmacology (1 cr) G748 Principles of Toxicology I (1 cr) G761 Molecular & Cellular Physiology of Ion Channels (1 cr) G762 Renal Physiology (1 cr) G782 Physiology & Pathophysiology of Lipid Rafts (1cr) G830 Advanced Cardiovascular Physiology (3 cr) G831 Concepts & Controversies in Cardiovascular Science (2 cr) G852 Concepts of Cancer Biology: Signaling Gone Awry (1 cr) G855 Experimental Design and Research Biostatistics (1 cr)
Additional Required Courses for Research Option (18 cr didactic courses + 12 cr F701): • G505 Responsible Conduct Res (1 cr) • F701 Physiology Research (12 cr)	

Example Curriculum – No Research

Fall Courses	**Cr**	**Spring Courses**	**Cr**
F503 Human Physiology	3	G651 Introduction to Biostatistics	3
G715 Biochemical Basis of Biological Processes (3 cr)	3	F613 Medical Physiology	5
G716 Molecular Biol & Genetics	3	F702 Seminar in Physiology	1
G717 Cellular Basis of Systems	3	Electives	6
Electives	3		
Total Fall Semester	**15**	**Total Spring Semester**	**15**

Example Curriculum – Including the Research Option

Fall Courses	**Cr**	**Spring Courses**	**Cr**
F503 Human Physiology	3	G651 Introduction to Biostatistics	3
B500 Biochemistry	3	G735 Cardio/Renal/Respiratory Physiol	2
G717 Cellular Basis of Systems	3	G736 GI/Endo Physiology	1
F702 Seminar in Physiology	1	F701 Research in Physiology	3
F701 Research in Physiology	1	Electives	3
G505 Responsible Conduct of Research	1		
Total Fall Semester	**12**	**Total Spring Semester**	**12**

Summer Courses	**Cr**
F701 Research In Physiology	6
Total Credits: Fall, Spring, Summer (12 + 12 + 6)	**30**