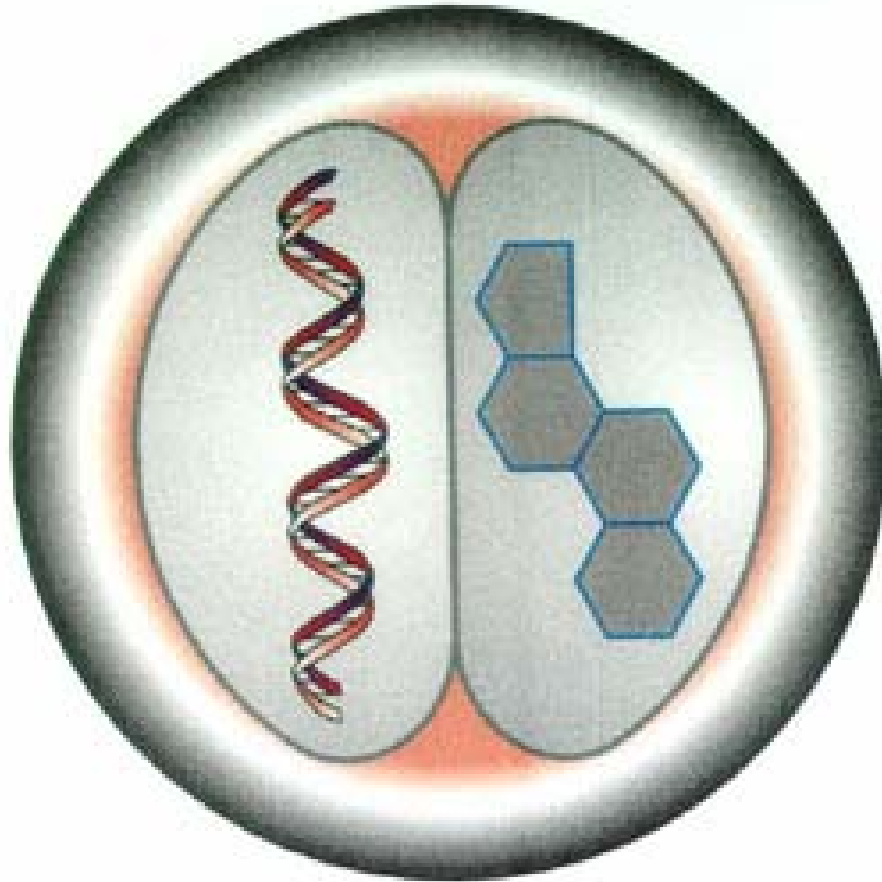


Endocrinology-Reproductive Physiology Program



Graduate Student Handbook

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Graduate Student Directory

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A History of the Endocrinology-Reproductive Physiology Program

The ERP Program at the University of Wisconsin-Madison was formally organized in 1959. In 1963 Drs. L.E. Casida, Professor, Department of Genetics; W.H. McShan, Professor, Zoochemistry, Department of Zoology; R. K. Meyer, Chairman and Marshall Professor of Zoology; B. M. Peckham, Chairman and Professor of Obstetrics and Gynecology; and R.C. Wolf, Associate Professor, Department of Physiology, submitted an application to the Ford Foundation and received \$1,500,000 to support the program for five years, which was then further extended to 1970. In addition to the Ford Foundation award, this group prepared a successful training grant application to the National Institute of Child Health and Human Development for \$1,000,185. Funds from both grants enabled the ERP Program to increase the number of trainees in the program. In 1968 the program staff also expanded to include: Drs. A.E. Colás, Professor of Obstetrics and Gynecology and Physiological Chemistry; N.L. First, Professor of Meat and Animal Science; O. J. Ginther, Assistant Professor of Veterinary Science; H. J. Karavolas, Assistant Professor of Physiological Chemistry; and K.W. Thompson, Professor of Obstetrics and Gynecology. The original group from 1963 and new faculty from 1968 proceeded with a renewal application of the National Institute of Child Health and Human Development training grant (above). This successful renewal no longer stipulated a specific number of trainees from developing countries be enrolled in the ERP Program. The ERP Program then continued along these lines and over the following decades developed a worldwide reputation as a program of excellence. In 1972 additional faculty were added to the ERP Program including Dr. J. Gorski, Professor of Biochemistry and Dr. D. Dierschke, Assistant Professor of Meat and Animal Sciences. Of note, during the next three decades, the program was awarded further support both alone (NIH Training Grants 1970-1972, 1978-1982, AGRICCSRS 1987-1992, US Army 1996-2001) and in conjunction with other notable programs (Cell and Molecular Biology Program, Developmental Biology, and University departments under the umbrella of a Gamete and Embryo Biology training grant through NICHD (1989-1993). Also by this time, the longstanding existence of the program was now shown by the prominent achievements of its early trainees, many of which have gone on to meritorious achievements.

As the program passed into the 1990's many of the original faculty had moved or retired but new faculty were added, increasing the diversity and breadth of research opportunities. Greater involvement was seen in particular from the Wisconsin Regional Primate Center as well as the recently developed Perinatal Research Division of the Dept OB/Gyn. The outcome is an enhanced and broadened program with continued strength derived from studies in the traditional reproductive science/animal science/dairy science areas but with further emphasis on studies aimed directly at human/nonhuman primate reproduction. To date the program has produced 123 M.S. and 146 Ph.D. graduates since 1963.

Since 2000, the ERP Program has continued to greater involvement with faculty from the Medical School and in particular, the Department of Obstetrics and Gynecology. In 2005 conversations with the Dean's of the Graduate School and Medical School were conducted and approval was sought to realign the ERP Program with the Medical School. Final approval and transfer was complete in April 2006. Administrative offices were moved to take advantage of the administrative structure offered by the Department of Obstetrics and Gynecology as well as to develop new post-doctoral training opportunities for MD's seeking basic science training. A new post doctoral training grant application (T32) was submitted and is under review (summer 2006).

In the last six years in particular, the changes in faculty have resulted in a shift in program direction as described, but the program has maintained its productivity and this is reflected in a steady increase in grant funds awarded to the now 31 individual faculty (currently in excess of \$30,000,000). During the past ten years ERP has maintained 23-30 predoctoral students at any one time.

The ERP Program anticipates continued growth in the area of translational research that bridges basic laboratory research to patient care and vice versa. The enrollment of MD's participating in the new Material Fetal Medicine Fellowship will be a positive growth area for the ERP Program faculty and students.

Organizational Structure of the ERP Program

Director: Ian M. Bird, Ph.D., Associate Professor
Department of Obstetrics and Gynecology

Assistant Director: Ronald Magness, Ph.D., Professor
Department of Obstetrics and Gynecology; Director- Perinatal Research Laboratories

Program Administrator: Tiffany Bachmann

Committees:

Steering Committee:

I. Bird, Chair
D. Abbott
E. Alarid
T. Golos
C. Jefcoate
J. Parrish
L. Sheffield
E. Terasawa
A. Reeder, Student Representative
T. Bachmann, Ex-Officio Member

Admissions & External Affairs:

R. Magness
E. Terasawa
M. Wiltbank
J. Zheng
M. Patankar
T. Bachmann

Diversity:

P. Kling, Chair
W. Bosu
D. Peterson
J. Watters
T. Bachmann

Student Affairs:

I. Bird, Chair
P. Bertics
J. Odorico
J. Parrish
C. Jefcoate
Student Representative: open
T. Bachmann, Ex-Officio Member

Faculty Research Descriptions

David Abbott, Ph.D. The multidisciplinary and collaborative research program in mammalian reproductive biology comprises two major recurrent themes that have been present since the days of my Ph.D. thesis work. One involves social regulation of reproductive neuroendocrinology and its implications for understanding the neuroendocrine basis of infertility in women. The second involves the development of androgen excess during early life and its consequences for fetal programming of ovarian and metabolic dysfunction in adulthood (prevalent health problems in women today). Both themes focus on proximate mechanisms constraining female reproductive success and the use of experimental manipulation to determine physiological cause. Recent research developments in my laboratory have placed us in a position to (1) directly determine the specific neuroendocrine mechanisms mediating social rank-related hypogonadotropic anovulation in marmosets, and (2) experimentally determine the physiological bases of hyperandrogenic anovulation caused by prenatal androgen excess in female rhesus monkeys. Both initiatives address common causes of infertility in women, namely (1) hypothalamic (psychogenic) amenorrhea and (2) polycystic ovarian syndrome (PCOS).

Our nonhuman primate research models are also providing opportunities to study the consequences for metabolic function of both steroid hormone deficiency and excess. Our work with hypoestrogenic, anovulatory subordinate female marmosets is providing novel insight into estrogen-depletion bone loss and metabolic bone disease, while our work with hyperandrogenic, prenatally androgenized female rhesus monkeys is unveiling permanent endocrine reprogramming resulting in pancreatic impairment, abdominal adiposity, hyperlipidemia and increased bone mineralization. Such studies not only allow us to obtain new understanding of the causes of human pathology, but they also serve to improve our understanding of nonhuman primate physiology and reproductive success which can have significant impact on the management of remaining populations in captivity and the wild.

Elaine Alarid, Ph.D. The endocrine system is a complex network of hormonal signals that functions to maintain homeostatic balance under varying physiological conditions. A central component in orchestrating control of endocrine function is the anterior pituitary. The anterior pituitary integrates information from the central nervous system and peripheral organs, and produces regulatory hormones that control hormone production at secondary endocrine sites. How does the pituitary interpret multiple and sometimes conflicting signals? Its response is in part, controlled by cellular concentration of hormone receptors. Our current focus is to understand the control of estrogen receptor (ER) content. We have discovered that estrogen induces rapid loss of ER by invoking proteasome-mediated proteolysis. This pathway represents a non-genomic action of estrogen that differs from its classical transcriptional activation function. Furthermore, it adds an additional level of complexity to the control of estrogen responsiveness which has been previously unappreciated.

Craig Atwood, Ph.D. Research in my laboratory draws together our interests and expertise in reproductive endocrinology and neuroscience in order to examine experimentally the hormonal regulation of aging and Alzheimer's disease. The basic premise behind our research is that hormones that regulate reproduction in mammals act in an antagonistic pleiotrophic manner to control aging via cell cycle signaling; promoting growth and development early in life in order to achieve reproduction, but later in life, in a futile attempt to maintain reproduction, become dysregulated and drive senescence (Bowen and Atwood, 2004). In essence, we believe that

reproductive hormones regulate our aging by modulating the life cycle of cells. My laboratory examines two major research themes. The first research theme examines the role of HPG hormones in modulating healthy aging and lifespan, with an emphasis on gene expression, utilizing pituitary hormone lowering drugs to dissect hormonal pathways that promote longevity and their mechanism of action, and developing strategies to reverse or halt these hormonal declines. The second theme examines the role of the hypothalamic-pituitary-gonadal axis in neurodegeneration associated with Alzheimer's disease (i.e. in synaptic and neuronal loss, amyloid deposition and neurofibrillary tangle formation). This research has been instrumental in the implementation of an anti-gonadotropin drug into Phase 3 clinical trials for the treatment of AD (Voyager Pharmaceutical Corp., Raleigh , NC).

Paul Bertics, Ph.D. The major goal of the Bertics research program is to characterize the processes whereby cellular proliferation and differentiation are variably and coordinately modulated by growth factors, cytokines (interleukin-5 (IL-5)) and toxins (i.e., bacterial lipopolysaccharide or endotoxin). Principally, the laboratory is focused on the study of epidermal growth factor (EGF) and growth hormone (GH), and there exists considerable evidence that EGF and GH play major roles in the control of cellular proliferation and development. The receptors for these two agents have been co-localized to a variety of different tissues/cell types including mammary epithelia, fibroblasts, liver, ovary, and other reproductive tissues. Substantial information is available on EGF receptor structure and its properties, particularly as they pertain to its intrinsic, ligand-stimulated protein-tyrosine kinase activity. Nonetheless, comparatively little is known about its regulation and role in differentiation and reproduction. In terms of reproductive function, EGF has been found to be critical for stimulating the meiotic phase of spermatogenesis, and for stimulating the mammary gland growth required during pregnancy and lactation. EGF receptor action has also been linked to embryogenesis, and work from the Bertics group has demonstrated the binding of EGF and transforming growth factor- α in mammalian preimplantation embryos. In addition, other studies from the Bertics group have examined the ontogeny of the EGF receptor during development of the fetal bovine mesonephros and the urogenital tract.

Ian Bird, Ph.D. Studies in the Bird research program include: Control of pregnancy-induced changes in Nitric Oxide and prostacyclin production in uterine artery endothelium in order to regulate uterine blood flow, with particular emphasis on associated pregnancy-induced changes in uterine artery endothelial cell signaling pathways; Control of pregnancy-induced cell expression and function of/signaling by Angiotensin II-Type1 and -Type 2 receptors in uterine artery endothelium. Control of adrenal zonation and function by Angiotensin II and integration of adrenal and gonadal steroidogenesis in higher mammals/humans. Gestational development of zonation and function of fetal adrenal gland in sheep and primate; Role of nitric oxide in control of lyase versus hydroxylase activities of cytochrome P450 17-alpha hydroxylase and so cortisol vs androgen production.

William Bosu, Ph.D. Primary research emphasis is on the physiological processes involved in the reestablishment of ovarian activity in postpartum cows, with special reference to pathophysiological mechanisms involved in intrauterine infection induced Cystic Ovarian Disease. Specifically our present research includes projects aimed at pinpointing the site of action of lipopolysaccharide on the hypothalamic-hypophyseal-axis in the induction of abnormalities in folliculogenesis and ovulation.

Gabriela Cezar, Ph.D. Stem Cell research.

Karen Downs, Ph.D. Developmental and genetic control of fetal extraembryonic lineage formation during mouse gastrulation, use of mammalian stem cells in gene therapy.

Theresa Duello, Ph.D. Regulation of pituitary receptors for gonadotropin-releasing hormone; regulatory mechanisms responsible for the differential secretion of two hormones from the same cell of syncytium; paracrine regulatory mechanism in the placenta.

Marc Drezner, M.D. My research emphasis focuses on the integrated regulation of phosphorous and vitamin D metabolism and the coordinated modulation of bone mineralization. Recent success in the laboratory includes cloning the gene for X linked hypophosphatemia and have discovered a new class of hormones, phosphatonins.

Oliver Ginther, Ph.D. Studies in the Ginther research program include: Reproductive physiology of the mare including most aspects of anestrus, estrus, diestrus and pregnancy; physical interactions between the embryo and uterus in horses and cattle; basic and applied aspects of regression of the corpus luteum by prostaglandins and the uterus.

Thaddeus (Ted) Golos, Ph.D. The Golos laboratory examines questions of placental biology relevant to human health and disease. We use both nonhuman primate models as well as human clinical materials in our studies. Under this broad focus, research areas include the transcriptional control of the specification of the trophoblast lineage (of particular interest are basic helix-loop-helix and homeobox transcription factors); maternal-fetal immune tolerance (nonpolymorphic MHC class I molecules on a subset of placental cells and their interactions with the maternal immune system), placental development and function in the clinical setting of maternal diabetes, particularly the influences of glucose and oxygen on placental vascular development, and gene therapy and gene transfer at the primate maternal-fetal interface to develop experimental and therapeutic models of utero-placental function and dysfunction.

Pamela Kling, MD Current research projects are focused in the following areas: 1) Roles of Enteral Hematopoietic Growth factors in Early Development; 2) Vaculogenic Effects of Erythropoietin in the Immature Gastrointestinal Tract; 3) The Effects of Chronic Hypoxia on Erythropoiesis and Iron Metabolism in the Fetus; 4) Anemia and Iron Metabolism in the Fetus and Premature Newborn; and 5) Role of Pancreatic Production of Erythropoietin in Placental Angiogenesis.

Colin Jefcoate, Ph.D. P450 cytochromes catalyze reactions involving transfer of oxygen atoms, usually from molecular oxygen, to a substrate. They participate in a non-specific manner in xenobiotic metabolism, including drug clearance, but also bioactive carcinogens. Other family members catalyze specific biosynthetic reactions in pathways, such as steroid synthesis.

This laboratory has recently cloned P450 (CYP1B1), which is present in steroid-regulated tissues, steroid-synthesizing tissues, and embryos. It is postulated that this gene participates in developmental regulations, confirmed by recent linkage of CYP1B1 to congenital glaucoma. This laboratory has characterized the gene and 5'-flanking sequence and study gene regulation and function in mammary and fetal cells, notably by processes involving the Ah receptor. The laboratory studies regulation of cholesterol conversion to pregnenolone, which takes place in specialized mitochondria and initiates all steroid synthesis. The project examines how the peripheral benzodiazepine receptor and StAR protein may act to regulate this process.

Ronald Magness, Ph.D. Major projects in the Magness Program include: 1) Endothelial-derived vasodilators in pregnancy: expression and endocrine signaling mechanisms; 2) Estrogen and progesterone regulation of endothelial nitric oxide and prostacyclin production as it affects uterine and systemic blood flow; 3) Uterine and placental angiogenesis, and how angiogenic factors affect uterine and placental blood flow; 4) the regulation of endothelial nitric oxide production in uterine and placental vasculature at the maternal fetal interface in both the human and ovine models; 5) the role of shear stress in modulating uterine and placental endothelial vasodilator production.

Thomas Martin, Ph.D. Peptide hormones and neurotransmitters mediate intercellular communication in the endocrine and nervous systems. These signaling molecules are secreted by the fusion of secretory vesicles with the plasma membrane in exocytosis, a process that is highly regulated. Two distinct secretory pathways, one involving synaptic vesicles (SVs) and the other employing dense-core vesicles (DCVs), mediate the release of fast-acting synaptic transmitters or peptide hormone and modulatory transmitters, respectively. Exocytosis of both DCVs and SVs is dependent upon and activated by increases in cytoplasmic Ca^{2+} . Our current research is directed at elucidating the molecular machinery responsible for Ca^{2+} -dependent DCV exocytosis. These studies are of potential relevance for understanding the molecular basis for peptide hormone, neuropeptide and modulatory transmitter secretion.

James Ntambi, Ph.D. Cellular differentiation and hormonal and dietary regulation of gene expression.

Jon Odorico, M.D. Our laboratory is interested in using embryonic stem (ES) cells to study pancreatic islet development. Despite advances in our understanding of islet ontogeny, there are still significant gaps in our knowledge. Specifically, we do not yet understand precisely how insulin secreting beta cells and other endocrine cell types within mammalian pancreatic Islets of Langerhans are specified from embryonic foregut endoderm, or what complement of transcription factors direct this fate choice. Furthermore, what is the exact phenotype of islet progenitor cells, and what are the critical epithelial – mesenchymal interactions that guide this developmental process, are important questions that have not been answered. We have recently described the derivation of islet progenitor cells and mature islet cell types expressing insulin, glucagon, somatostatin, and pancreatic polypeptide from murine ES cells induced to differentiate in culture. In this *in vitro* differentiation system many aspects of normal islet development are reproduced, thus offering a simple, controllable culture model in which to study islet ontogeny.

John Parrish, Ph.D. The goal of the Parrish lab is to understand why males differ in fertility. The experimental model used is the bovine as this is the only species with extensive quantitative fertility data available. Several approaches are being used to determine why bulls differ in fertility. One approach is to examine the mechanisms of sperm capacitation focusing on the regulation of intracellular calcium, pH and \square amp within sperm. Another approach has been to examine how bovine sperm interact with oviduct cells in vitro to induce capacitation and maintain sperm viable for extended lengths of time. The third approach is to examine how sperm nuclear shape is related to fertility. In this approach novel methods have been developed to quantify sperm nuclear shape with Fourier Harmonic Analysis. The last approach is to examine how scrotal insulation affects in vitro fertility of sperm and its relationship with changes in sperm nuclear shape and the biochemical regulation of capacitation.

Manish Patankar, Ph.D. The primary focus of my research is to devise specific methods for early diagnosis of epithelial ovarian cancer (EOC) and to understand the effect of factors

produced by ovarian tumors on the functional capacity of tumor infiltrating lymphocytes. This research involves extensive utilization of glycoproteomic analysis in conjunction with cellular immunology, molecular biology and glycobiology. These studies are supported by grants from the Department of Defense and the Elsa U. Pardee Foundation.

Richard Peterson, Ph.D. The goal is to determine consequences of perinatal TCDD exposure on prostate development in the C57BL/6 mouse and elucidate mechanisms involved. Specific aims. Are to identify aberrant effects of TCDD on development of ventral (VP), dorsolateral (DLP), and anterior (AP) prostate, determine using AhR knockout (AhRKO) mice if these effects require AhR, determine critical periods for producing them, elucidate androgen dependent mechanisms for causing them, determine if TCDD acts directly on urogenital sinus (UGS) or prostate to inhibit development, determine if co-exposure to a natural AhR antagonist in human food, resveratrol, ameliorates TCDD disruption of prostate development, identify during the critical period TCDD responsive genes in UGS, determine using a dose response approach TCDD responsive genes in UGS that may be involved in TCDD inhibition of prostatic budding, and determine long-term consequences of perinatal TCDD exposure on prostate size, histology, and growth in senescence.

Jack Rutledge, Ph.D. Current research interests are in applications of *in vitro* bovine embryo production and allied technologies to animal breeding and animal production systems. I also have interests in improving the technologies; for example one of my current students (Men) has worked on vitrification of cattle oocytes. Another (Fischer-Brown) is working on dynamics of embryonic growth and development as it relates to culture medium.

Linda Schuler, Ph.D. The Schuler laboratory is interested in the interactions of prolactin and related hormones with other growth factors and hormones at fetal and maternal targets during pregnancy. They have extended studies on the actions of prolactin in mammary alveolar development during pregnancy to its role in the development and progression of mammary cancer. Using a variety of *in vitro* models, they examine control of receptor expression including receptor internalization and linkage to signal transduction, cell specific target genes, and signaling pathways employed. They have developed transgenic mouse models using a non-hormonally responsive, mammary specific promoter in order to examine interactions on preneoplastic processes *in vivo*.

Dinesh Shah, M.D. My area of research interest is mechanisms of preeclamptic hypertension, which obviously has broad relevance to the physiology and pathophysiology of reproduction. We have investigated rennin secretion from chorionic cells and steroid-mediated regulation of rennin secretion in stromal/decidual cells. We have contributed significantly to the concept that there is a complete rennin-angiotensin system in the human uterus, and its regulation may have implications for preeclamptic hypertension. We are currently expanding into the area of cell-to-cell interaction in the decidua specifically related to macrophages and endothelial cells.

Lewis Sheffield, Ph.D. Research is focused on understanding the growth and function of the mammary gland. Models used include laboratory animals (mice), domestic animals (cows) and cell cultures of human, mouse or bovine origin. We have shown that local expression of epidermal growth factor (EGF) in the mammary gland is under control of protein and glucocorticoids. We are currently investigating the molecular mechanisms by which EGF expression is regulated and physiological roles of EGF in the mammary gland. In related studies, we have examined the interactions of EGF with other hormones under some conditions, protein can inhibit EGF action. We are investigating the mechanisms of this inhibition, with

particular emphasis on the role of protein kinase C.

Susan Smith, Ph.D. This laboratory studies the molecular mechanisms by which dietary components affect prenatal development, adversely and beneficially. Work focuses on three agents which are linked at the molecular level: retinoids (vitamin A), ethanol, and dioxin (e.g. Agent Orange). Our long-term goal is to identify maternal intakes, which pose a risk to healthy fetal development.

Ei Terasawa, Ph.D. Research of my laboratory focuses on the study of the hypothalamic neuroendocrine system, the luteinizing hormone releasing hormone (LHRH) neurons. The aims of the current studies are: 1) to determine the regulation of the LHRH neurosecretory system in controlling the onset of puberty; 2) to determine the mechanism of oscillatory activity of LHRH neurons; 3) to study the differentiation, development, and migration of LHRH neurons; 4) to investigate ovarian steroid action on pulsatile LHRH release; and 5) the role of the hypothalamus in menopause.

James Thomson, Ph.D. The major focus of my lab is on understanding how primate embryonic stem (ES) cells choose between self-renewal, apoptosis, and differentiation into specific lineages. Species such as the rhesus monkey provide an extremely accurate model for understanding human development, but the limited availability of embryonic material has historically limited progress in primate experimental embryology. For this reason, my group has isolated primate ES cells to serve as an accurate tissue culture model for the differentiation of human tissues. We reported the first isolation of ES cell lines from a non-human primate in 1995, work that led us to the first successful isolation of human ES cell lines in 1998. Human ES cells are capable of unlimited undifferentiated proliferation, and yet maintain the ability to form many, and likely all, of the cells that make up the adult including gut and respiratory epithelium (endoderm); bone, cartilage, muscle, blood vessels, and hematopoietic cells (mesoderm); skin, astrocytes, oligodendrocytes, and neurons (ectoderm). We are currently studying the factors that promote human and rhesus monkey ES cell self-renewal and, in collaboration with other groups at the U. W., are studying the differentiation of these cells to hematopoietic, cardiac, pancreatic, and neural cells. We are examining shared mechanisms of self-renewal and pluripotency by comparing the gene expression patterns by human ES cells, hematopoietic stem cells, and neural stem cells. To identify genes that control self-renewal or that control specific differentiation events, we are developing powerful genetic screens based on phage display and lentiviral expression cloning. Ultimately, the differentiated derivatives of human ES cells could have important applications in transplantation medicine, and the rhesus monkey and rhesus ES cells will provide an essential model for developing novel ES cell-based therapies.

Jyoti Watters, Ph.D. - My research interests are thus centered around the molecular mechanisms employed by microglia that result in the gender-specific production of pro- and anti-inflammatory cytokines/agents that are ultimately involved in the inflammation and neurotoxicity associated with diseases and disorders of the CNS. Because women often have a higher incidence or predisposition to certain immune and neurodegenerative disorders than men, I have particular interest in investigating the role of estrogens in microglial cell production of inflammatory mediators. The focus of my studies will thus revolve around investigating the effects that adenine nucleotides and estrogens exert on microglial cell MAPK activation (e.g. p38, JNKs, ERKs) which ultimately control microglial cell activity and their production of inflammatory mediators. My initial studies will utilize the microglial cell lines BV-2 and N9, to identify molecular targets of estrogen and nucleotide action. Subsequent studies will involve the use of primary microglial cells derived from estrogen receptor knockout mice as well as mice

possessing genetic aberrations in nucleotide receptors important for microglial cell function (i.e P2X7).

Milo Wiltbank, Ph.D. Dr. Wiltbank is focused on three areas: Regulation of expression and action of the prostaglandin F2-alpha receptor, mechanisms involved in selection of the dominant follicle and development of effective reproductive management programs for dairy producers.

Ziming Yu, Ph.D. My research interests are the potential role for transcription factors, AP-1 and Ets-1 in particular, in the monocyte/macrophage-mediated regulation of biological functions of human endometrial stromal cells and vascular endothelial cells in physiologic processes as well as pathologic conditions. More specifically my current research is primarily focusing on: 1) the decidual macrophage-mediated Ets-1 activation and placental angiogenesis in normal versus preeclamptic pregnancies; 2) the endometrial macrophage-mediated AP-1 activation and cell proliferation in endometrial stromal cells and the peritoneal fluid macrophage-mediated Ets-1 activation and angiogenesis in endometriosis.

Jing Zheng, Ph.D. My long-term goals are to determine cellular and molecular mechanisms that regulate angiogenesis and endothelial cell function, which ultimately control blood flow. My current research interests are to study effects of nitric oxide and angiotensin II on placental angiogenesis using human and ovine endothelial cell models, and signaling pathways. Specific research project include 1) determining whether in the fetoplacenta bFGF- & VEGF-induced angiogenesis is modulated in part via an increase in production of nitric oxide which in turn activates MAPK signal pathway and increases expression of bFGF & VEGF as well as their receptors; 2) determining whether newly identified VEGF receptor, neuropilin-1 and -2, are expressed in endothelial cells and their roles in placental angiogenesis and vasodilators; and 3) exploring roles of angiotensin II in regulation of angiogenesis and vasodilation. These studies, therefore, will glean important information on the mechanisms that regulate placental angiogenesis during late pregnancy and define the underlying molecular interactions of vasodilation and angiogenesis.

Graduate Student Handbook

Introduction

This handbook is intended for your use as a source of information throughout your graduate studies. This handbook contains most of the forms you will need during your graduate studies as well as checklists to monitor your degree progress. Copies of these forms are also available to download from the ERP Program web site at <http://www.erp.wisc.edu>.

Additional questions you may have concerning the Program that are not covered in the following pages should be directed to your major professor or one of the following:

Tiffany Bachmann, Program Administrator
1 South Park Street, Suite 555
Madison, WI 53706.
608-287-2322 (voice)
608-287-2426 (FAX)
Email: tabachmann@wisc.edu

Dr. Ian Bird, Program Director
7 E. Meriter Hospital
202 South Park Street
Madison, WI 53715
608-267-6252 (voice)
Email: imbird@wisc.edu

Committee Descriptions

Program Steering Committee: The purpose of this committee is to provide the Program Director with guidance on issues affecting the administrative function of the ERP Program. The immediate past Program Director will also serve on this committee. The Committee will also serve as the nucleus for the pre-doctoral training grant application. Members of this committee are: Dr. Ian Bird, Chair, Dr. David Abbott, Dr. Elaine Alarid, Dr. Ted Golos, Dr. Colin Jefcoate, Dr. John Parrish, Dr. Lewis Sheffield, and Dr. Ei Terasawa. Student Representative, Amy Reeder. Ex-Officio Member, Tiffany Bachmann.

Admissions and External Affairs: The purpose of the Admissions and External Affairs Committee is to set standards for acceptance into the ERP Program and screen applications during the admission periods in addition to recruitment and promoting the program to external organizations. Committee members are: Dr. Ron Magness, Dr. Manish Patankar, Dr. Ei Terasawa, Dr. Milo Wiltbank, Dr. Jing Zheng, and Tiffany Bachmann.

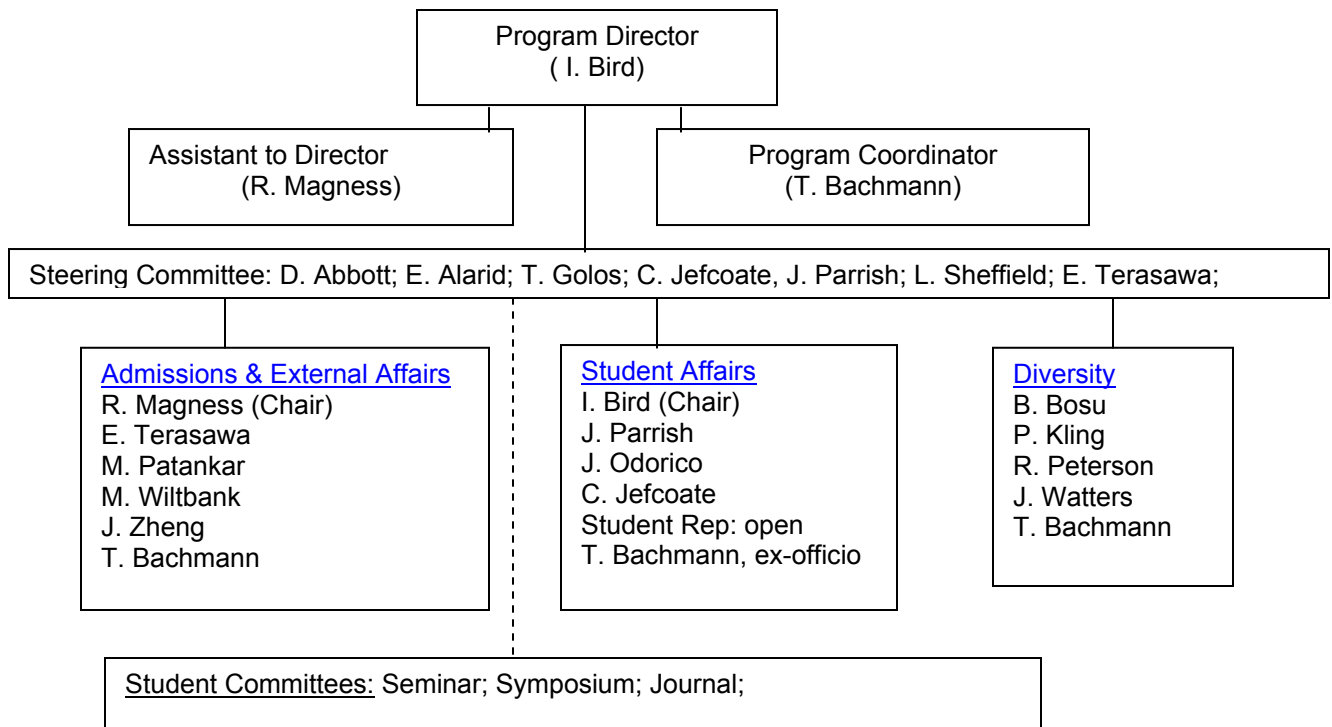
Student Affairs: This committee reviews the curriculum content of the Special Topics Courses, evaluates course requirements and makes policy as needed in addition to handling student issues. Members of this committee are: Dr. Ian Bird, Chair, Dr. Paul Bertics, , Dr. Colin Jefcoate, Dr. Jon Odorico, and Dr. John Parrish. Student Representative, open. Ex-Officio Member – Tiffany Bachmann

Diversity: This committee is responsible for enhancing the diversity of the ERP Program consistent with the University of Wisconsin policies. Faculty members are: Dr. William Bosu, Dr. Pam Kling, Dr. Dick Peterson, and Dr. Jyoti Watters. Tiffany Bachmann.

Seminar Committee: This committee's main purpose is to plan and conduct the ERP Seminar course (Animal Science 954/ Zoology 954). A student member will coordinate student presentations and guest speakers.

Symposium Committee: Each year graduate students of the ERP Program organize and host the annual symposium. Committee members are responsible for selecting a date, arranging keynote and invited guest speakers, hospitality and the preparation of symposium materials.

Program Administration



Graduate Curriculum In Endocrinology-Reproductive Physiology

The ERP Program will consider applications for a MS, MS/PhD or PhD. If a student enters for a MS program, please note that continuation to a PhD will require the student is in good academic standing and has the approval of the advisory/thesis committee to continue.

The following pages describe the degree requirements for the PhD and MS.

The Ph.D. Curriculum

This curriculum leads to the M.S. and Ph.D. degrees and has been designed for training prospective researchers and teachers in Endocrinology and Reproductive Physiology. Preparation for graduate training in Endocrinology-Reproductive Physiology normally should include undergraduate courses in physics, calculus, organic chemistry, genetics and physiology. Students coming into the Program vary widely in their background. Consequently, duration of the training period may vary.

A doctoral degree from the University of Wisconsin-Madison requires 32 graduate level credits (300 level or above) taken as a graduate student. Pass/fail courses do not count toward the degree.

The following courses are required for Ph.D. candidates and a grade of a B or better must be earned.

Core Course Requirements

- A. Select one course from each of the three sections.
- Statistics 571 (4 cr.) **or** Agronomy 771 (3 cr.) **or** Advanced Statistics
 - Animal Science 875- Endocrine Physiology (3 cr.) **or** Biochemistry 630 (3 cr.)
 - Biomolecular Chemistry 503 **or**¹ Biochemistry 501 (3 cr.)
or Biochemistry 507 & 508 (6 cr.) **or** Biomolecular Chemistry 704 (6 cr.)
- B. Seminar & Professional Development (AnSci or Zool. 954) each semester
(See seminar policy below)
- C. Neuroscience 700 – Professional Development

Additional Requirements –

- Select one course each from items D, E, F
- D. Advanced Biochemistry **or** Cell Biology
- E. Advanced Endocrinology **or** Advanced Reproduction
- F. Advanced Statistics
- G. Advanced Topics Courses – Select two courses through Animal Science/ Dairy Sci
or AHABS 875 (2 cr)
- Gamete and Embryo Biology
 - Reproductive Patterns
 - Special Topics
 - Pregnancy, Parturition, and Lactation
- H. Other - per Certification Committee

RECOMMENDED COURSES

The following is a list of recommended courses, however other courses may be appropriate on the advice of the Thesis Committee. As course numbers and level of difficulty vary by department and instructor, your Thesis Committee will determine what courses will be considered advanced given your background, research project and career goals. Consult the current Graduate Catalog and Timetable for availability. Courses may be cross-listed with multiple departments.

<u>Department</u>	<u>Course Number</u>	<u>Title</u>	<u>Semester Offered</u>
AHABS	528	Immunology	Fall
AHABS	529	Immunology Lab	Fall
Anatomy	660	Electron Microscopy: Theory and Practice	Summer: even yrs.
Animal Sciences	434	General Reproductive Physiology	Spring
Biochemistry	510	Biochemical Principles of Human and Animal Nutrition	Fall
Biochemistry	601	Protein and Enzyme Structure and Function	Fall
Biochemistry	620	Eukaryotic Molecular Biology	Spring
Biochemistry	651	General Biochemical Methods	Fall
Biochemistry	660	Methods in Biochemistry	Fall

¹ Biomolecular Chemistry 503 is only recommended for students with a strong background in Biochemistry or related field.

Biochemistry	624	Mechanisms of Enzyme Action	Fall: even yrs.
Biochemistry	702	Biochemical Mechanisms of Regulation in the Cell	Spring
Biomolecular Chemistry	503	Human Biochemistry	Spring
Biomolecular Chemistry	504	Human Biochemistry Lab	Spring
Biomolecular Chemistry	704	Comprehensive Human Biochemistry	Fall
Dairy Science	305	Lactation	Fall
Genetics	466	General Genetics	Fall
Genetics	561	Introduction to Cytogenetics	Spring
Genetics	612	Prokaryotic Molecular Genetics	Fall
Genetics	677	Advanced Topics in Genetics	Fall
Molecular and Environmental Toxicology	625	Toxicology 1	Fall
Molecular and Environmental Toxicology	626	Toxicology 2	Spring
Molecular and Cellular Pharmacology	710	Cytostolic and Nuclear Signaling Mechanisms	Spring
Oncology	675	Protein Purification	Fall: odd years
Physiology	720	Principles of Human Physiology	Spring
Statistics	571	Statistical Methods for Biosciences 1	Fall
Statistics	572	Statistical Methods for Biosciences 2	Spring
Zoology	466	General Genetics	Fall
Zoology	570	Cell Biology	Fall

SEMINAR REQUIREMENT—see also Final Seminar Presentation

All students enrolled in the Program are required to participate in the ERP Program Seminar (Animal Sciences 954 or Zoology 954). Policies for registration are as follows: all students are required to give a presentation each year (fall or spring semester) on their current research project beginning in their second year of full-time enrollment. Sign up for dates will be coordinated through the ERP Program Coordinator.

Students who will not make a presentation in a given semester must register for either 0 **OR** 1 credit. No more than **three** absences will be allowed per semester to earn a Satisfactory grade.

These policies will continue to apply for students who have completed the requirements for dissertator status.

Students are responsible for contacting both the Program Coordinator and faculty Seminar Committee advisor if there is a conflict regarding regular attendance (laboratory experiments, courses etc) in advance of extended absences. Extended absences will be considered on a case by case basis.

REGISTRATION REQUIREMENTS

Students with Research Assistantships (RA's) and who have not achieved dissertator status must register for 8-12 graduate level credits each fall and spring semester to remain eligible for tuition remission and health insurance. Students with summer RA's must register for at least two graduate level credits during the regular 8 week summer session. If you fall below full-time status, you are responsible for contacting your payroll and benefits coordinator as this status change will have consequences.

Students who have achieved dissertator status with an RA or Training Grant Fellowship must register for three credits (usually 990 Research Credits) each semester (fall, spring and summer) until their dissertation is on file at Memorial Library as well as register for the seminar series. Dissertators who do not have an RA or other appointment, are not required to register for the 8 week summer session unless graduation is planned.

The same registration policy applies to international students. International students should consult the Office of International Student and Scholar Services at 262-2044 with questions regarding student status and their visa.

Registration requirements for summer vary by student status, however students are expected to register for the summer session if they are using campus facilities, staff time or intend to graduate. Consult the Graduate School Academic Guidelines for specific policies.

RESEARCH CREDITS

Students are expected to enroll for 990 Research Credits each semester until they have completed their degree. Students should contact their major professor or departmental timetable representative for authorization to register. Students receive a P grade (progress) each semester until the final semester when a letter grade will be given.

CERTIFICATION COMMITTEES

PhD Certification committee should be formed no later than the beginning of the second year. An advisor hold will be placed on the student's record and can be removed by the Program Coordinator when the Certification form is completed. All forms are available on the ERP Program website at <http://www.erp.wisc.edu>

The role of the Certification Committee is one of mentoring and advising so care should be taken in the formulation process to ensure a good balance (view points, training experience) and fit with both the student and research project. The Certification Committee faculty should be from the student's primary area of research interest and represent potential graduate committee members. The student should work closely with his/her adviser and arrange a Certification/ Advisory Committee during the first year of study for the purpose of recommending a specific plan of courses to study based upon the student's preparation and direction of proposed graduate research. The student should complete the "Certification for Ph.D. Candidates" form and distribute it during the certification meeting.

The conduct of original research resulting in a written thesis is required for graduate degrees in Endocrinology-Reproductive Physiology. Identification of an appropriate research topic and faculty mentor are critical steps in the development of a graduate program.

The Program offers tremendous flexibility to permit students to select courses best suited to their individual interests. In order to maintain this flexibility and yet preserve excellence in academics, students must work closely with their Committee members. Early certification and

periodic progress updates with Committee members ensure continued success of the Program's format.

The Certification Committee is comprised of the following tenured or tenure track individuals:

- A. Major professor
- B. Two UW-Madison faculty named by student and major professor
- C. Two UW-Madison faculty approved by Program Director
- D. Additional members (optional)

PRELIMINARY EXAMINATION

The preliminary exam is scheduled when the candidate has completed the required course work and is ready to enter dissertator status.

Contact the Program office 3-4 weeks prior to the examination date to obtain the appropriate examination application form for submission to the Graduate School and request that a warrant be obtained from the Graduate School office. Be prepared to provide the date of examination and members of your examining committee. Have available at time of examination:

- (a) a complete transcript or record of undergraduate and graduate courses taken and grades received
- (b) a copy of certification, and evidence of having completed the requirements for the degree (for Preliminary and Final examinations)

Ideally the preliminary exam will be done in the third year unless there are extenuating circumstances. If exam hasn't been taken by the beginning of the 4th year, Program will enquire as to the student's plan or circumstances. The purpose is to identify problems at the prelim exam and this will then help determine if the student should re-evaluate the project, lab environment or continue in the program. The exam's aim is to see the thinking process of the project and clarify the plan for the thesis project by using a grant format; a significant amount of data is not required although many aim to at least show the project is technically achievable. Ideally all course work would be completed before the prelim is taken, however if there is a course requirement outstanding, the committee can sign the form, but withhold the date of completion. Student will not achieve dissertator status until that course is complete and the warrant is returned to the Graduate School.

Exam Format

First and most important note all written documents, questions, answers etc must be channeled through the appropriate personnel. Specifically, the initial proposal must be submitted to and approved for format by the program administrator before it is formally accepted and the clock begins. Note all written questions must be submitted by faculty for collation to the administrator in order be recorded and the administrator will communicate these directly to the faculty advisor for moderation before passing on to the student. Likewise students answers will be made to the administrator who will record them prior to forwarding to the committee members. Be aware deviation from this procedure can only mean unnecessary delays for all concerned.

- a. Pre proposal preparation
 - i. Before you begin to prepare your written document for the preliminary exam, you should discuss the following issues with your faculty advisor and your thesis committee:
 1. Major Grant Guidelines that you will follow (NSF, USDA, NIH)
 2. Scientific Content
 3. Availability of ALL concerned (candidate, advisor, committee) for the oral review. Keep in mind that the oral review cannot take place within 30 days of the submission of the written document.
- b. Proposal development
 - i. The written portion of the exam must follow the specified guidelines of your selected grant agency. You are only responsible for the Scientific Proposal section. You do not need to include resource pages, biosketchs, budgets etc...Ask your advisor or committee members for sample proposals to review formatting and content style.
 1. Page formatting
 - a. Use the font, text size, margin and spacing guidelines as required by the grant agency
 - b. Number the pages consecutively
 - c. Stay within the specified page limitations for the scientific proposal section; the proposal does not need to be maximum number of pages allowed.
 2. Content
 - a. Your faculty member is responsible for reviewing the scientific content of each section
 - b. Follow all heading requirements
 - c. Follow all guidelines for the use of graphs, photos, tables and figures
 - d. Review guidelines for inclusion of literature reviews and publication requests. If not generally included with a proposal to your agency, include this information following the main document.
 3. General Presentation
 - a. Document must be word processed in a commonly available format (MS Word)
 - b. The completed document must be a single file with all images, tables, figures and graphs embedded into the document laid out in the style of the chosen national granting agency.
 - c. Include a brief table of contents and cover page with your name, date submitted, and advisor's name.
 - d. Follow all rules regarding the use of fonts and color. Do not rely only on color to convey your information as some will not have access to a color printer.
- c. Proposal Submission
 - i. Contact the Program Coordinator at least 24 hours prior to your expected date of distribution to check formatting and accessibility.
 - ii. The Program Coordinator will review your document to verify that it meets the formatting grant guidelines of your selected agency. You and your advisor are responsible for reviewing the scientific content.

1. Proposals that do not meet the proper formatting requirements will be returned to the student for corrections.
 - a. The student may work in the program office to correct the formatting issues. PC computers are available.
 2. If the proposal passes the formatting check it will be converted to an Adobe Acrobat format.
 - iii. The Program Coordinator will be responsible for sending out the final approved exam document to the committee members with a carbon copy of the message and document to the student. This is the day at which the clock starts, not the day of submission by the student.
- d. Question Submission
- i. Committee members are required to send their written questions to the Program Coordinator during the two week timeframe specified in the email.
 - ii. The Program Coordinator will compile the questions received into a single document and forward them to the student's advisor for review at the end of the two week period.
 - iii. The faculty advisor is responsible for reviewing the questions for clarity and repetitiveness and preparing a final copy to be given to the student and Program Coordinator.
 - iv. The student has two weeks from the date of receipt of the committees' questions to reply. The student must send the written replies to the Program Coordinator who will compile the written responses into a uniform document to be distributed to the committee members at the end of the two week period.
- e. The Oral Exam
- i. Purpose
 1. The aim of the oral exam is to discuss the student's answers to the written questions and the scientific aims of the proposal as well as develop a sound timeframe for degree completion. By the end of the meeting the student and committee members should have a firm understanding of the remaining work to be completed, papers to be written and semester of completion.
 - ii. Format
 1. The student may elect to give a brief presentation, not longer than 30 minutes to update the committee on new developments since the time the written document was sent.
 2. The student's faculty advisor is the chair of the committee and is responsible for keeping the meeting on track and completed in a reasonable amount of time.
 3. The discussion should be similar to grant review session.
 - iii. After the exam
 1. If the student has passed the exam each committee member should sign the warrant.
 2. The student should return the signed warrant to the Program Coordinator to make a copy for the file and be returned to the Graduate School.
 3. The Graduate School will send the student a letter confirming dissertator status for the following semester.
 4. In cases where the student does not pass the preliminary exam, the committee can recommend two options:

- a. Retake the exam at a later date provided that the committee has given clear instructions for areas of improvement
- b. Recommend that the student terminate with an MS degree

ANNUAL PROGRESS REPORT

All ERP Program graduate students are required to complete an annual progress report by the last day of the ERP spring semester seminar or other deadline announced. The progress report form is located at the end of this handbook and also on the ERP Program web site.

The purpose of the annual progress report is to provide a forum for you and your advisor to discuss satisfactory progress and resolve any concerns before they become a source of contention or impediment to degree completion.

FINAL SEMINAR PRESENTATION

The student should contact the Program Coordinator to select a date for the final presentation. Students must register for 1 credit of Seminar and make a full length (55 minute), lecture format presentation for that credit in the final year for each degree prior to the final defense. This presentation of original research at Animal Science/Zoology Seminar 954 will be graded by the course instructor and members of the audience. The student must earn at least a “B” grade for this presentation. If the minimum grade is not achieved the student must make a second presentation.

Although in the past the required ERP seminar and exit seminar have been one and the same thing; this need not be the case and indeed it may be easier for the PhD candidates if it were not. ERP candidates must have a graded seminar to fulfill requirement but this does not have to be the Exit seminar if it is not convenient.

The ERP seminar can be given any time during the final year if it is not the Exit seminar. The ERP seminar is graded by the audience. At the beginning of the presentation it must be made clear to the audience if this is or is not also an Exit seminar.

The Exit seminar format is to be approved by the committee. If the regular ERP seminar time is not convenient for the speaker, committee members or due to other scheduling conflicts, an outside (special time) seminar can be arranged by the student. **A departmental seminar is an acceptable forum, so long as it is announced to the entire ERP faculty body, the student’s committee members and students in the Program.** The Exit seminar should be given close to the end of the final semester. It is desirable to have a gap between the Exit seminar and the thesis defense, although both can be given on the same date if circumstances dictate this. Ideally the Exit seminar should be given between one week (ideal) and three months maximum before the thesis defense exam. If all examiners were at the Exit seminar presentation students should skip repetition in the thesis defense and use the defense presentation for more detailed questions from the Committee.

DISSERTATION

The Graduate School will provide you with a copy of the “The 3 D’s: Deadlines, Defending, and Depositing Your Ph.D. Dissertation.” You will also receive “The Guide to Preparing Your Doctoral Dissertation.” This booklet contains specific information about page margins, paper requirements, copyright policies, formatting and other resources.

Check the Graduate School seminar schedule for Dissertator workshops on preparing your thesis and get helpful advice from the Graduate School Degree Coordinator.

FINAL EXAMINATION WARRANT

At least three weeks before the scheduled final oral exam, the student should contact the Program Coordinator to request the Final Oral Examination Warrant. The request should include the names of your committee members, working title of the dissertation and proposed date of final oral exam. At this time all progress grades should be removed using a grade change request form.

FINAL ORAL EXAMINATION

The student is responsible for scheduling (date, time and location) the final oral examination with members of the Committee and providing them the dissertation at least four weeks in advance of the exam. The student will present his/her research to the panel as well as answer questions from them. Typically the exam is at least two hours in length.

Upon successful defense of the thesis, all members will sign the warrant. The original warrant should be taken to the Graduate School at the time of your final review of your thesis. Please provide the ERP Office with a copy of the signed warrant for your student file.

If the final oral examination does not result in a unanimous outcome, per Graduate School policy, only one dissenting signature is allowed on the final degree warrant regardless of the number of members on the committee. If more than one committee member dissents, the student has not passed the final oral examination. The student, faculty advisor and committee members should come to a mutual understanding of what steps must be taken in order to reschedule the final oral examination or re-evaluate the degree goal.

AFTER THE FINAL ORAL EXAMINATION – REVISIONS AND CORRECTIONS

After your final oral exam, you, your faculty member and committee members should come to a mutual understanding on how revisions and corrections to the final thesis will be addressed. It is generally accepted that your faculty advisor will have the most influence on how revisions and corrections are addressed. Differences of editorial opinion should be addressed by the individual faculty members involved. Expect that some revisions will be required before the thesis will be deposited with the Graduate School; allow yourself a reasonable amount of time to make revisions and meet degree deadlines. You can not make changes to your dissertation once it has been deposited.

AFTER THE FINAL ORAL EXAMINATION-GRAD SCHOOL FINAL REVIEW

After passing your oral defense, contact the Graduate School at 608-262-2433 to arrange an appointment for the final review. If you are defending near a semester deadline call immediately after your defense; appointment times fill rapidly during the two to three weeks before any deadline. Before you come for your final review make all corrections requested by your committee.

Dissertation review appointment times are 10:00-11:00 a.m. and 2:00-3:00 p.m. Monday through Friday. Reviews normally take about 15 minutes.

If you are requesting certification of your degree from the Registrar's Office, the grade(s) for the semester in which you are depositing your dissertation (and all other outstanding grades) must

be reported to the Graduate School and to the Registrar before or by the time of your final review.

The following materials must be brought to 217 Bascom Hall for the final review:

- Warrant. Your Committee must be identical to the one approved on the Ph.D. Final Oral Committee Approval Form.
- Survey of earned Doctorates
- ProQuest Information and Learning (formerly UMI) Microfilm Agreement Form. This form is found in "Publishing Your Dissertation," pp. A4 and A5. (The "Author Discount Form" on p. A6 is not required or endorsed by the Graduate School)
- Three (3) extra copies of the Title Page. The title on one of the three copies is to have all equations, formulae, chemical symbols, and the like translated into words (for example, instead of "H₂O", use "water").
- Committee's Page (do not hand write except for signatures).
- UMI Abstract. This abstract must be signed by your advisor and is in addition to any abstract that may be in your dissertation.
- Completed unbound dissertation on high quality, white, 20 pound weight paper.

Depositing Your Dissertation

The copy of your dissertation will be retained by the Graduate School to be sent to Proquest Information Learning for microfilming and binding.

After the Graduate School has approved your dissertation, you will be authorized to go to the Bursar's Window at 21 North Park Street to pay the microfilming & binding fee of \$90. You can pay with cash, checks, and money orders. **Credit cards are not accepted.** The Window hours are 8:00 a.m. - 4:00 p.m., Monday through Friday.

If you are registering and retaining copyright of your dissertation through Proquest, you will also pay the copyright fee at the Bursars office. The copyright fee is now \$65.00. Cash, personal checks and money orders are accepted.

GRADUATION

Information about graduation ceremonies is available from the Secretary of the Faculty web site at <http://wiscinfo.doit.wisc.edu/secfac/commence/Commence.html> . The Program Coordinator will announce deadlines concerning commencement participation. Ceremonies are held in December and May. Students who complete degree requirements during August may participate in either ceremony. Participation in the commencement ceremony does not indicate degree completion. Degree completion certification letters can be requested the Registrar's Office. Diplomas are mailed to the student's permanent address approximately 12 weeks after the degree deadline.

Master's Degree Curriculum

Students who select the Master's Degree option must earn at least 16 graduate level credits (300 level or above) excluding pass/fail and audit courses. Twelve of these credits must be didactic course. A grade of a "B" or better must be earned in all courses.

CERTIFICATION

Due to the short time line for MS students, the First Thesis Committee meeting should be more than simply to just select course-work; time should also be devoted to discussing the project. Master's students are required to form their committee and meet within the first year otherwise an advisor hold will be placed on future registration. This hold can be removed by the Program Coordinator when the Advisory Committee form has been returned. All forms are available on the Program web site at <http://www.erp.wisc.edu>

The Committee will be comprised of three faculty: 1) Major Professor 2) faculty selected by both the student and major professor and 3) a faculty member approved by the Program Director.

COURSEWORK

Students must select one core course from each of the sections A, B, and C. The remaining degree requirements will be completed with courses selected from sections D-F. A grade of 'B' or better must be obtained in all courses.

Core Courses- Select one course from each section A-C

A) Animal Sciences 875 (3 cr.) Endocrine Physiology
or Biochemistry 630 (3 cr.) Cellular Signal Transduction Mechanisms

B) Statistics 571 (4 cr.) Statistical Methods for Bioscience I
or Agronomy 771(3 cr.) Experimental Design

C) Biomolecular Chemistry 503² (3 cr.) Human Biochemistry
or Biochemistry 501 (3 cr.) Introduction to Biochemistry
or Biochemistry 507 & 508 (6 cr.) Survey of Biochemistry
or Biomolecular Chemistry 704 (6 cr.) Comprehensive Human Biochemistry

Additional Course Requirements

D) Animal Science/ Zoology 954 Seminar (See also Seminar Policy)

E) Neuroscience 700 – Professional Development (effective for incoming students entering Fall 2003 or later)

F) Additional courses selected in consultation with members of the Certification Committee
(See list of recommended courses)

G) One Advanced Topics course in Endocrinology-Reproductive Physiology

- o Gamete and Embryo Biology
- o Reproductive Patterns
- o Pregnancy, Parturition and Lactation
- o Special Topics

RESEARCH AND THESIS

The conduct of original research resulting in a written thesis is required for graduate degrees in Endocrinology-Reproductive Physiology. Identification of an appropriate research topic and faculty mentor are critical steps in the development of a graduate program.

² Biomolecular Chemistry 503 is only recommended for students with a background in Biochemistry or related field.

Students are expected to enroll for 990 Research Credits each semester until they have completed their degree. Students should contact their major professor for authorization to register. Students receive a P grade (progress) each semester until the final semester when a letter grade will be given.

MS students are required by to deposit their thesis in Memorial Library. Thesis guidelines are available from the Graduate School website at <http://www.grad.wisc.edu>.

ANNUAL PROGRESS REPORT

All ERP Program graduate students are required to complete an annual progress report by the last day of the ERP spring semester seminar. The progress report form is located at the end of this handbook and also on the ERP Program web site.

The purpose of the annual progress report is to provide a forum for you and your advisor to discuss satisfactory progress and resolve any concerns before they become a source of contention or impediment to degree completion.

PRELIMINARY EXAM

While a prelim exam for Masters students is not traditionally required it would be remembered that the current Prelim format for PhD goes a long way to safeguarding the student against any unpleasant surprises at the final seminar or Thesis defense. By writing in the style of the grant the student is forced to consider the possible adverse outcomes and discuss alternate strategies that may well be necessary **BEFORE** they occur. In addition by having a detailed 'grant' proposal and study design the committee gets every opportunity to state **BEFORE** time runs out what problems they may have with the basic techniques, analysis, and design of the project in its closing stages. As such there is considerable merit in a Prelim for Masters students and on balance it should be seriously considered to be in the students best interests. If the exam is required by the committee, use the format on the following pages.

The written portion of the preliminary exam will be the submission of a short grant proposal formatted document of the student's thesis/dissertation topic to the committee members. **The specific agency format will be determined by the student and committee members.** The student will submit the written proposal to the committee members at least one month before the oral exam is scheduled. The committee has at least two weeks from the receipt of the proposal to respond to the student with questions in writing. Upon receipt of the questions, the student will then have two weeks to respond to the committee and schedule the oral exam.

(See PHD format).

FINAL SEMINAR PRESENTATION

The student should contact the chair of the Seminar Committee to select a date for the final presentation. Students must register for 1 credit of Seminar and make a full length (55 minute), lecture format presentation for that credit in the final year for each degree prior to the final defense. This presentation of original research at Animal Science/Zoology Seminar 954 will be graded by the course instructor and members of the audience. The student must earn at least a "B" grade for this presentation. If the minimum grade is not achieved the student must make a second presentation.

THESIS

Your thesis is the culmination of your research work during your time at UW-Madison. The Graduate School has prepared the "Guide to Writing your Master's Thesis." This booklet contains information on page formats, paper quality, and information on depositing the thesis at Memorial Library. This guide is available on the Internet at <http://www.wisc.edu/grad/guide/mguide.html>.

You are required to deposit your thesis at Memorial Library. See the Graduate School guide to Preparing your Master's Thesis for additional information.

THESIS DEFENSE

Defense of the thesis is arranged by the student, major professor and committee after all degree requirements have been met (including final seminar). The student is responsible for providing the final thesis to Committee members at least four weeks before the final exam. A warrant must be requested from the Program office at least three weeks prior to the defense date. At this time all incompletes or progress grades must be changed using the grade change form available from the Program Coordinator. The signed warrant must be returned to the Program Coordinator. Additional information is available in the guide "Expecting your Master's Degree? Procedures to Help" which is available on the Internet at <http://www.wisc.edu/grad/guide/mdegree.html>

GRADUATION

Information about graduation ceremonies is available from the Secretary of the Faculty's web site at <http://wiscinfo.doit.wisc.edu/secfac/commence/Commence.html>. The Program Coordinator will announce deadlines concerning commencement participation. Ceremonies are held in December and May. Students who complete degree requirements during August may participate in either ceremony. Participation in the commencement ceremony does not indicate degree completion. Degree completion certification letters can be requested the Registrar's Office. Diplomas are mailed to the student's permanent address approximately 12 weeks after the degree deadline.

Grievances and Appeals

During your time as an ERP graduate student you may find that a situation or policy is objectionable and want to seek a remedy, either informal or formal. The action taken can vary on a case-by-case basis from an informal discussion with the party involved to a formal enquiry by the Student Affairs Committee or Graduate School. The Program will work with the parties involved to seek a solution with the minimal disruption to the student, faculty member or laboratory as possible. All students are welcome to contact the Program Coordinator or Program Director with any issues or concerns. If you are not comfortable with either of these people, you may contact any member of the Student Affairs Committee, the departmental representative in your primary area, your major professor, or members of your thesis committee among others.

Most issues are best resolved at the "local" level with the party involved. If the two parties cannot come to a satisfactory resolution, the issue can be reviewed by the Student Affairs Committee. This committee will investigate the nature of the concern and recommend further action. Where the issue is beyond the scope of the Committee, it is recommended to seek counsel from resources within the university community. Additional information is available in the Graduate Student Handbook.

Appealing a failing preliminary exam determination: **See Prelim Exam**

Other Information and Resources

LABORATORY ROTATIONS

The ERP Program is able to offer laboratory rotations to select applicants if funding is available. The initial selection criteria is defined in item 4.

1) At least one laboratory director must express an interest in a single student and at least preliminarily be prepared to commit to offering a position pending the rotation evaluation be satisfactory. It is also understood that the faculty member either has funds in hand or has a very high likelihood that funds will be forthcoming. The student in turn must have made a commitment to the ERP and be prepared to undertake the full rotation. All parties should understand that occasionally a match will not result and, if that is the outcome, the student then goes back to the available pool of applicants in the application status.

2) The rotation is three months total through a maximum of three laboratories. Time is to be divided equally among the labs unless an appeal is successfully made to the Program Director justifying the extension or other change.

The goal is not for the student to accomplish an entire research project, but rather for the student and faculty member to both get a general sense of each other and what mutual experiences they would have upon a proper match.

3) The ERP Program will fund the student's salary and administer benefits during the rotation period using the 12 month appointment scale. The stipend for 2007- 2008 is \$1586 per month with a 50% RA appointment.

4) In cases where there are a limited number of slots, students are usually picked by the recruitment committee but the members should consider possible conflicts of interest when voting on applications who are under consideration for a position in his/her lab. The Director's vote can be sought when abstention leads to a tie.

a) A strong GPA (>3.5) is preferred, but flexibility may be appropriate so that the funds can be used as necessary.

b) Rotations are only given to students pursuing the PhD degree. Preference is not automatically given to a student who already has a master's degree, but rather to the strongest overall candidate

c) The Program/University is an Affirmative Action/Equal Opportunity educator. Women and people of color are encouraged to apply.

5) Faculty Obligations during the lab rotation

a) The faculty member must ensure that student's time is utilized during the rotation.

b) The faculty member must be present to participate in the training sufficiently to allow accurate evaluation of the student during the rotation period.

c) The faculty member will conduct both an entrance and exit interview with student. The performance grade should be pass/fail only. [Exit interview form](#).

d) At the end of the rotation, the 2-3 faculty must discuss the disposition of the student and coordinate an offer of acceptance, or return to the applicant pool.

6) Student Obligations during the lab rotation

a) The student will participate in an entrance and exit interview with each member during the rotation period.

[Exit interview form](#) (See following pages)

b) The student must be present and available for training during the rotation period.

c) The student must use his/her time efficiently in the lab during the rotation.

d) The student will be informed that if a major professor is not identified at the end of the rotation period, the student will go back to the pool of available applicants. The ERP Program makes no guarantee of a subsequent match, ie. the same applies for other available applicants.

SCHOLARSHIPS AND FELLOWSHIPS

The Academic Services Office within the Graduate School coordinates the many University and national fellowships. For additional information about available fellowships, visit their web site at <http://info.gradsch.wisc.edu/fellows/index.html>. Your advisor may also be aware of scholarships and fellowships within your area of study through professional associations and societies.

The pursuit and attainment of external scholarships and fellowships during your training will provide a direct benefit to your CV as you are looking for a position following graduation, may provide additional stipend and travel support as well as benefit your faculty member by having extra resources to fund other members of the lab while you have support.

STUDENT TRAVEL FUNDS

The ERP Program has funds available to offset the cost of students traveling to present at national and international meetings. Students who are interested in a travel grant should review the guidelines and then contact the Program Office to coordinate the request.

1) The travel grant award is \$300.

2) Funding is limited to students who have (or will have) abstracts accepted for a national or international meeting.

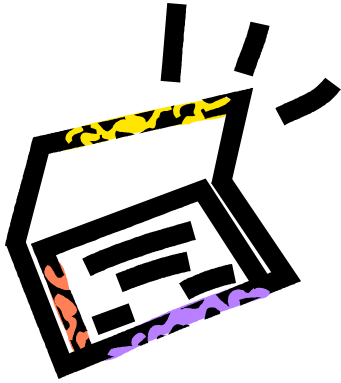
3) Funds will be released when the ERP Office receives a copy of the acceptance letter and 2) copy of the accepted abstract.

4) Funds must be used by June 30th, but requested for processing by June 1st

5) Only one travel stipend is available per student each fiscal year. Contact the Program Coordinator for specific details.

6) The Program Coordinator has a designated travel credit card available if you would like to have your airfare or meeting registration pre-paid to avoid out of pocket expenses.

7) Spending must be coordinated through the ERP Office to ensure funds are spent in accordance with University travel policies.



ERP Program Reimbursement Information

To help expedite your reimbursement for travel or hosting expenses, please provide the following:

- ✓ Original, itemized receipts for expenditures
- ✓ Proof of payment for items purchased by credit card, debit card, or check (on-line printouts are acceptable)
 - Bank statement with personal information deleted
 - Credit card statement with personal information deleted
- ✓ Dates and times of departure and return if claiming meals on travel days
- ✓ Conference agenda that shows dates, location of the meeting and meals provided in the registration fee
- ✓ Hosting Expenses – names of individuals in attendance
- ✓ Travel Funds: A copy of the accepted abstract and letter of confirmation by the hosting organization
- ✓ **You will be required to provide an original signature on the Travel Expense Form; NO EXCEPTIONS!!**

Allow 6-8 weeks for a payment to be processed.

HELPFUL WEB SITES

Division of Information Technology (DoIT)--<http://www.doit.wisc.edu>

Endocrinology-Reproductive Physiology Program--<http://www.erp.wisc.edu>

Graduate School Catalog—<http://www.wisc.edu/grad/catalog>

International Student and Scholar Services--<http://wiscinfo.doit.wisc.edu/iss>

New Student Information Handbook—<http://www.wisc.edu/ces/res>

The Graduate School—<http://www.grad.wisc.edu>

Timetable-- <http://registrar.wisc.edu/registrar>

University Health Services-- <http://www.uhs.wisc.edu/>

University Libraries—<http://www.library.wisc.edu>

University of Wisconsin- Madison Homepage--<http://www.wisc.edu>

Wisconsin Union—<http://www.wisc.edu/union>

SEXUAL ASSAULT AND SEXUAL HARASSMENT INFORMATION

February 19, 2007

To: All University Employees

From: Patrick V. Farrell, Provost

Re: I. Mandatory Sexual Assault Reporting
II. Sexual Harassment Information Project

The University of Wisconsin-Madison supports efforts to create a safe and positive campus climate for people to work and study. This memo provides information about our efforts in the area of sexual assaults and sexual harassment.

I. Mandatory Sexual Assault Reporting

One of the ways we measure our progress toward our goal of creating a safe and positive environment for work and study is to record and report incidents of sexual assault on campus and in the immediate surrounding areas.

Wisconsin Statutes, Chapter 36.11(22), requires that UW-Madison annually report to UW System Administration the number of sexual assaults that occurred on campus and in certain surrounding areas. For UW-Madison to comply with state law, we need the cooperation of all University employees.

The Office for Equity and Diversity (OED, <http://www.oed.wisc.edu/>) is the designated campus office for receiving employee reports of sexual assault and compiling annual employee reports. The OED collaborates with the Dean of Students' office, which collects student reports of sexual assault, to provide the information to UW System on an annual basis. UW-Madison relies on reports from employees, students and other members of the University community to support the victims of these crimes and meet its legal obligations.

Office for Equity and Diversity

Room 179A Bascom Hall
500 Lincoln Drive
Madison, Wisconsin 53706
Telephone: 608-263-2378
FAX: 608-263-5562
Wisconsin Telecommunications Relay Service, 7-1-1

The Offices of the Dean of Students (ODOS, <http://www.wisc.edu/students/>) have been designated to receive student reports of sexual assault and for compiling annual reports of student assaults.

Offices of the Dean of Students

75 Bascom Hall
500 Lincoln Drive
Madison, Wisconsin 53706
Telephone: 608-263-5700

If you witness or receive a first-hand report of a sexual assault on the UW-Madison campus or in the immediate surrounding area, Wisconsin law requires that you report the sexual assault to university officials, specifically the OED or the ODOS.

Information about campus crime and other safety information can be found at the Safety Information website maintained by the Offices of the Dean of Students (<http://www.wisc.edu/students/faculty/safety.htm>) or by contacting OED for a paper copy.

Please contact the OED if you have any questions about this employee reporting requirement.

II. Sexual Harassment Information Project

The Sexual Harassment Information and Resources Project is an ongoing, comprehensive initiative to heighten campus awareness about sexual harassment issues and to increase our effectiveness in addressing this important campus concern. Sexual Harassment Information Sessions are available to any campus unit. At information sessions available to any campus unit, we offer information about the law, university policies and campus resources, and provide advice on how to respond compassionately and effectively to sexual harassment concerns. Informational session attendance is required for all faculty and staff with Limited appointments.

The “Sexual Harassment Information and Resources website” (<http://www.oed.wisc.edu/sexualharassment/>) and companion brochure, Sexual Harassment: Defining and Addressing a Community Concern, explain the University of Wisconsin-Madison's policies on sexual harassment and consensual romantic or sexual relationships. They provide information and guidance on what to do if you are harassed, accused of harassment, or contacted by someone who believes he or she has been harassed. In addition, they highlight the responsibilities of individuals in positions of authority (principal investigators, supervisors, managers, department chairs, directors, and deans).

The University of Wisconsin-Madison is committed to prevention and will take prompt and appropriate action whenever it learns that sexual harassment has occurred. You are encouraged to report incidents or concerns to your supervisor, manager, department chair, director, or dean for appropriate action and resolution. Sexual harassment (and other prohibited harassment or discrimination) also may be reported to the Office for Equity & Diversity. In addition, sexual harassment contact persons are available to anyone wishing to inquire about sexual harassment, discuss an incident, or receive information about options for resolving complaints. The contact persons are equipped to address initial concerns and refer appropriately. Our “Sexual Harassment Information and Resources” website provides names and contact information for sexual harassment contact persons (<http://www.oed.wisc.edu/sexualharassment/resource.html>) and other campus resources. You may contact any of these resources for information and assistance.

Please address questions about our informational materials or this campus-wide sexual harassment information and resources project to Bernice Durand, Vice Provost for Diversity and Climate, Office of the Provost, bdurand@wisc.edu, 262-5246, or Luis Piñero, Assistant Vice Provost for Workforce Equity and Diversity/Director, Office for Equity and Diversity, lapinero@vc.wisc.edu, 263-2378.

If you wish to schedule a sexual harassment information session for your unit, please contact Pat Carol, in the Office of the Provost, at plcarol@wisc.edu or 262-5246.

Forms for Ph.D. and Master's Degree Students

1. Establishing your Ph.D. or Master's Certification Committee
2. Ph.D. and MS Proposal for Certification
3. Annual Student Progress Report
4. Faculty Evaluation for Laboratory Rotations
5. Student Evaluation for Laboratory Rotations
6. Degree Checklist

INSTRUCTIONS FOR FORMING A CERTIFICATION COMMITTEE

Advisory Committee Appointment for Master's Degree Candidate. A three-member Certification Advisory Committee is appointed during the first year of study, as follows: (1) faculty adviser; (2) faculty chosen in consultation between the student and adviser; and (3) faculty appointed/ approved by the Endocrinology- Reproductive Physiology Program Director (not necessarily a member of the Program faculty). The majority of this Committee must consist of faculty members of the Program. Additional faculty may be added to this Committee if so desired. Any deviation from this Committee must be reported to and approved by the Program Director.

Advisory Committee Appointment for Ph.D. Degree Candidate. A five-member Advisory Committee is appointed during the first year of study, as follows: (1) faculty adviser; (2) two faculty chosen in consultation between the student and adviser; and (3) two faculty appointed or approved by the Endocrinology-Reproductive Physiology Program Director. Faculty appointed under (2) and (3) do not necessarily have to be members of the Program faculty. The majority of this Committee must consist of faculty members of the Program. Additional faculty may be added to this Committee if so desired. Any deviation from this Committee must be reported to and approved by the Program Director.

DISTRIBUTION

Three signed copies of this record should be prepared and distributed as follows: candidate, faculty advisor and Program Director.

ENDOCRINOLOGY-REPRODUCTIVE PHYSIOLOGY PROGRAM

ADVISORY COMMITTEE

(Appointed for M.S. or Ph.D. Candidate)

This is to certify that the following faculty members have been appointed to serve as an Advisory Committee for _____ on _____, 20__:

Major Professor

Approved by Program Director:

**CERTIFICATION FOR PHD or MASTER'S DEGREE CANDIDATES IN
ENDOCRINOLOGY-REPRODUCTIVE PHYSIOLOGY**

(Three copies of this form should be typed, signed and distributed as follows: candidate; major professor; and Director of the Endocrinology-Reproductive Physiology Program.)

Candidate: _____ Major Professor: _____

Certification Date: _____ Committee: _____

Previous Education:

Research Outline (limit to one page and attach separately):

Preparatory Courses (can include undergraduate courses):

Taken –

<u>College</u>	<u>Qtr/Sem</u>	<u>Title</u>	<u>Cr</u>	<u>Grade</u>

Certification page 2.

Required Courses:

Taken -

--

To be Taken -

--

Additional Supporting Courses:

Taken -

--

To be Taken or Audited -

--

Endocrinology-Reproductive Physiology Program Student and Faculty Progress Report

To the Student:

The goal of the annual progress report is to ensure that all graduate students are making satisfactory progress in their research and towards their desired degree. Information provided will also be used to update student biosketches on the ERP web site.

Students are to complete the first page of the progress report and attach the requested items then provide a copy to their major professor who will then complete the faculty portion of the evaluation. When the student and faculty meet to discuss the progress report, both individuals should sign and date the form in the space provided.

To the Major Professor:

The purpose of the annual student progress report is to help faculty and students critically evaluate the student's academic progress in the ERP Program as well as to identify concerns early in the student's career. This is all the more important if there is any delay beyond one year in the formation of the Thesis Committee.

The student will provide you with a copy of his/her progress report which you will then complete the second page of the progress report. After you have completed the form, you will then meet with the student to discuss the progress reports and then each will sign in the space provided.

Distribution of the progress report will be as follows:

Major professor and student shall keep a copy of the progress report. If the Student Committee has been formed, the report should also be forwarded to the members of that Committee.

The original report (student and faculty evaluation) shall be delivered to the Program Coordinator for placement in the student's department file.

A copy of all progress reports will be sent to the Chair of the Curriculum and Student Affairs Committee for review.

Reports not received by the deadline will result in an incomplete in the Seminar.

Endocrinology Reproductive Physiology Program
Annual Graduate Student Progress Report

Name: _____ Date: _____

Information to be completed by student

Academic Progress

Date of Entrance: _____ Expected Date of Completion: _____

Date of Last Advisory Committee Meeting: _____

Current GPA: _____ Number of Credits below 3.0: _____

Remaining Courses Required (attach additional pages if needed):

Attach the Following Information:

1. List of all publications from the previous year (2006)
2. Honors and Awards Received (include fellowships, grants, travel awards and other academic honors)
3. Presentations at Societal Meetings or Conferences
4. One-page summary of your research project
5. Participation on Funded Grants (include PI name, project title and dates of participation)

Comment briefly on your goals for the upcoming year. If you feel you are not making satisfactory progress, please identify reasons.

Endocrinology-Reproductive Physiology Program

Faculty Evaluation

Faculty Name: _____

Name of Student: _____

To be Completed by Faculty Advisor.

Please make note of strengths as well as weaknesses.

1. Has the student made acceptable academic progress during the past year? Please comment.

2. Please comment the student's ability and performance in the laboratory. If deficiencies are noted, please address remedial action to be taken.

3. Will the student continue in your laboratory? If no, please explain.

By signing below, both student and major professor indicate that they have discussed the evaluation and both consider the report a fair and accurate assessment. In the event of a disagreement that cannot be resolved, the concerned party can refuse to sign but in so doing the Student Affairs Committee chair will begin informal inquiries to decide if the problem can be resolved or if further mediation or action is necessary.

Student Signature: _____ **Date:** _____

Faculty Signature: _____ **Date:** _____

Endocrinology and Reproductive Physiology Program

Rotation Evaluation-Faculty Sponsor

(All evaluations will be reviewed by the Admissions Committee, Program Director and Program Coordinator.)

Name: _____

Student's Name: _____

Description of Research Project: (Write a brief summary of the project you had the student work on during his/her rotation.)

Evaluation of Rotation

1. Did the student meet your expectations in the following areas?
 - a. Time spent in laboratory:

 - b. Laboratory technique:

 - c. Scientific method:

2. Did the student ask thoughtful and interesting questions?

3. Was the student courteous and respectful to others working in laboratory?

4. In what areas did the student excel?

5. In what areas could the student use the most improvement?

Signature of Faculty Sponsor: _____

Signature of Student: _____

Please return evaluations to the Program Coordinator, 1 South Park Street, Suite 555 after the conclusion of the rotation.

Endocrinology and Reproductive Physiology Program

Rotation Evaluation—Student

(All evaluations will be reviewed by the Admissions Committee, Program Director and Program Coordinator.)

Name: _____

Rotation Sponsor: _____

Description of Research Project: (Write a brief summary of the project you worked on during your rotation including any techniques you learned.)

Evaluation of Rotation

1. Did you have enough interaction with the Rotation Sponsor?
2. Do you feel that you received enough instruction regarding new techniques and protocols?
3. Was the research project appropriate for a rotation? (length, type)
4. Did you like the laboratory environment?
5. Did the research style of the Rotation Sponsor match yours?
6. Were you satisfied with this rotation as a learning experience?

Signature of Faculty Sponsor: _____

Signature of Student: _____

Please return evaluations to the Program Coordinator, 1 South Park Street, Suite 555 after the conclusion of the rotation.

Endocrinology-reproductive Physiology program

Student Information – Degree Checklist

Student Name: _____ ID#: _____

Semester of Enrollment: _____ Advisor: _____

Degree Goal: PhD MS

COMMITTEE MEETINGS

Certification: _____

Preliminary Exam: _____

Final Exam: _____

CORE COURSE REQUIREMENTS (ALL GRADUATE STUDENTS)

Circle the appropriate course selected and indicate semester completed

Statistics 571 or Agronomy 771 _____

Animal Science 875 or _____

Biochemistry 630 _____

Biomolecular Chem. 503 or _____

Biochemistry 501 or _____

Biochemistry 507 &508 or _____

Biomolecular Chem. 704 _____

Neuroscience Professional _____

Dev. 700 _____

ADVISORY COMMITTEE RECOMMENDED COURSES

Provide the Course Title and semester completed

Course Title _____

Course Title _____

Course Title _____

Course Title _____

Course Title _____

Course Title _____

Course Title _____

SPECIAL TOPIC COURSES REQUIREMENTS (1 MS; 2 PHD)

Provide the Course Title and semester completed

Course 1: _____

Course 2: _____

OTHER REQUIREMENTS

Seminar Registration _____

Research / 990 _____

The Unofficial Guide to Graduate Student Success in the ERP Program

(drafted June 24, 2002; Revised August 20, 2007)

Welcome and Introduction

Welcome to the Endocrinology-Reproductive Physiology Program at the University of Wisconsin-Madison. On behalf of the faculty and current graduate students we hope that you will have a positive experience in the program. As a new student you have many new people to meet, techniques to learn and policies and procedures to absorb. This document covers some issues that you will not find the "official" student handbooks from the Graduate School or program that will help you become a successful graduate student. Many of the items addressed are general in nature and can be applied to most laboratory situations, however be sure to discuss specific policies and procedures with your major professor. As always, please do not hesitate to contact either Tiffany Bachmann, Program Coordinator or Dr. Ian M. Bird, Program Director with any questions. Our doors and email boxes are open and we want to hear from you.

Getting and staying in-touch

As a new graduate student, after you obtain your student id number and register, the next essential task to complete is to establish your email account. This can be accomplished by activating your "Wisc" account through DoIt . The "Wisc" activation allows you access to your student records MY UW portal (fees, fines, holds and related information), register for classes and has a host of other handy features such as a calendar that you can view on-line anywhere you have a web connection.

If you need to get in touch with either the Program Coordinator or Director, email is preferred. You are much more likely to get a quicker response by email than to track either of us down by phone.

A lot of business and information is conducted by email, so be sure to read the messages from the Program Coordinator on a regular basis. Email is the most efficient method to share information about the happenings in the Program and communicate with a large group. Also, the Program has a web site (www.erp.wisc.edu) with up-to-date documents and information, take some time to look around, the answer might be waiting in cyberspace.

We are also regularly at the weekly ERP seminar and are happy to meet with you following the presentation.

Planning for Success

You have to plan for success as a graduate student. Careful planning requires that you are aware of the timelines for completing certain steps such as the formation of your committee, registration requirements and the host of other deadlines that will be announced. If you are unsure how they affect you, ask. Your advisor is there you keep you on track in the lab, but is most likely unable to keep track of the numerous deadlines and administrative procedures for each of his/her students. You are welcome to contact the

Program Coordinator at any time to review deadlines or procedures relevant to the ERP as your situation warrants.

The second critical step in planning for success is the formation of your Certification Committee no later than the first year of enrollment. This committee is comprised of 3 faculty members for the MS degree or 5 for the PhD degree or for MD Fellows. The purpose of the committee is the same for each degree, to ensure that you have a knowledgeable group of faculty members to oversee your development as a scientist. The selection of members is described in the "official" ERP student handbook. They will help you develop an academic plan that meets your career goals as well as ensure you leave the ERP Program as a capable member of the scientific community. Be thoughtful in your selection of committee members and keep them informed on a regular basis of your progress. Plan to meet with your committee at least once per year.

Once your committee has been established, regularly review the composition to ensure you have the right members on it. Committee membership can be changed as circumstances dictate. Speak with your faculty advisor and Program Director to make changes to your degree committee.

After your Certification Committee has been formed and approved, you must meet with them to approve your course study. Complete the Certification proposal as found in the "official" student handbook or on the web. Typically this meeting is an hour and half long with time to discuss the elements of your project, determine what courses are necessary for you to obtain the knowledge needed to complete the project or address any other concerns.

Other Important Events to Plan For:

Preliminary Exam:

If you are a PhD student in the second semester of your second year, you should begin to discuss the Preliminary Exam with your supervisor. Ideally this would be completed during the third year or no later than the beginning of the fourth year of graduate study. The completion of the Preliminary Exam indicates that you have completed the fundamental course work necessary to complete your research project and are ready to devote the remaining time of your graduate career to your research project. You should not expect to complete the preliminary exam and defend your thesis in the same semester or in reality even the following semester under normal circumstances.

The actual exam is taken in two distinct parts, a written "grant format" proposal and the oral exam. Specific details are discussed in the "official" ERP Student Handbook. Scheduling the oral exam takes some time to coordinate schedules, allow yourself plenty of lead time to schedule a date and prepare the document.

Scheduling your final seminar:

For each degree, you must present a full-length seminar to the ERP Program faculty and students. Some guidelines for planning your final seminar:

1. Your final seminar is to be given during the same semester you defend your thesis unless there are extenuating circumstances. **Prior approval is required to deviate from this standard.**
2. Ideally the majority of your committee members would be present at this seminar.
3. You must inform the Seminar Committee that the seminar is to be formally announced as a thesis defense seminar.

A few words about being an MS or PhD student

We feel that we must make mention that there are subtle differences in expectations for MS and PhD students, although you should always aim for a higher standard.

As an MS student, we understand that this is a starting point to further career development. Generally speaking, it takes approximately two and half years to complete the degree and write a satisfactory thesis for the MS degree. Depending your situation it may take a bit longer, although 2.5 years is a reasonable goal. To achieve this goal, it is imperative that you find a suitable project early in the process and have your course of study certified by your advisory committee. You will find that as an MS student your work will be more supervised and structured by the major professor.

Students entering the PhD track are expected to go further, having a more detailed understanding of both techniques and the principles which underlie them, awareness of the literature in the study area but also related fields, and ultimately an ability to perform independent research to **advance the field**. As part of the progress to PhD, contributions of original knowledge to the field is expected under normal circumstances, often taken to mean, that papers will have been published or at least submitted prior to defense.

Demystifying the Research Assistantship: Protocols

Just a reminder that if you have a Research Assistantship (RA) position you are required to enroll for 8-12 credits each fall and spring semester and 2 credits during the summer to maintain your RA benefits as indicated below. If you have achieved dissertator status (passage of the preliminary exam) then you must register for 3 credits until you deposit your dissertation.

Over 95% of ERP student's graduate education is supported by a research assistantship (aka RA) appointment. This type of funding allows you to receive a monthly stipend for your laboratory work as well as paying for your tuition and major portion of your health insurance. The RA does not cover the segregated fees; you must pay these every semester. Generally most faculty appoint their students to a 50% RA or higher

percentage which provides the benefits mentioned above as long as you remain in good standing.

What does a 50% RA really mean? It is best to consider an RA a "job" where you have obligations to fulfill in-order to receive financial and educational compensation. A 50% RA is interpreted to mean that your supervisor is employing you for on average of 20 hours per week to actively contribute to the aims of the grant proposal from which your stipend comes from and is related to your thesis work in some capacity. As such, you are expected to establish a mutually agreeable work schedule, to notify your faculty member of any changes in work schedule, and use your time in the laboratory efficiently to accomplish the goals and objectives specified. This is your "job" and is in addition to your course work and other obligations.

Your major professor has a responsibility to ensure the grant dollars are being spent on the research it was intended. Time spent on personal pursuits including homework, studying for exams, unrelated web-surfing and email is not consistent with any grant objectives and is not acceptable. If you find that you have too much time on your hands, realize that your supervisor will notice this too. Be proactive and seek productive tasks to fill your time when lab activities are slow.

Pay and other benefits

Vacation: As noted earlier your paycheck will more than likely come from your major professor's research grant and you will be paid on a monthly basis. A 50% RA for 20 hours per week would equal 1040 hours of work per 12 month period, giving you two weeks of leave time in a given year at the discretion of your supervisor. Be considerate when asking for time off and note that requests for time off to study is a red flag. If you have extended vacation plans and do not plan to make those hours up, you must contact your payroll coordinator in your primary department to adjust your level of appointment and stipend. Be sure to speak with your major professor about your plans in advance.

Sick leave is also another gray area not covered in the "official" manuals. Common sense should prevail on when to call in sick to maintain the health and safety of both you and your colleagues. Research Assistants do not have a formal sick leave policy so be sure to talk to your advisor on how and who should be notified if you are absent because of illness. If you need extended sick leave to care for immediate family members, you may want to consider a leave of absence. Talk to the Program Coordinator and your advisor if you want to pursue this option as deadlines and payroll issues should be considered in advance.

Maternity/ parental leave (both men and women) should be discussed as soon as reasonable plans can be made. Graduate Students with RA appointments do not fit the definition of a "regular employee" who is covered by formal maternity/ parental and Family Medical Leave policies. This type of leave is negotiated directly between the student,

advisor and payroll staff. In many cases opportunities to work from home on projects that do not involve coming to the lab on daily basis can be arranged (writing a paper, analyzing data, etc.) to meet the needs of both you and the aims of the grant. Direct and continuous communication between you and your advisor is essential during this period of time.

It is worth repeating, that your RA support is contingent upon funding available and making satisfactory progress in your research.

Pay Increases: Your monthly stipend is based on a percentage of \$38,064, the current approved rate for graduate research assistants in 2007/2008. While the base amount of \$38,064 does not change, a pay increase by your advisor can be made by increasing the percentage of your appointment up to the maximum 75% level. It is important to keep in mind that many factors influence the percentage of appointment you have including: total amount of funding available to your advisor through grants and departmental sources, the number of other students and staff supported by your advisor and departmental policies and customs.

We encourage your faculty member to consider a stipend increase when additional funds are available or when you become a dissertator (PhD students). Other circumstances may also warrant a percentage of appointment increase. While the ERP Program would like every student to receive the same level of support whenever possible, it is simply not possible for us to establish or enforce a uniform stipend rate among the trainees.

Attainment of an external fellowship, grant or other award in your own name is one additional method to secure a pay raise during the award period. Fellowships, grants and awards are publicized through many venues including the Graduate School Fellowships Office, websites of professional and scholarly associations and through the various federal grant agencies (NIH, NSF, USDA). These awards require an application so advanced planning is essential. The use of your preliminary exam document (PhD students) should be an excellent foundation to make revisions to submit an application.

Security of Funding

In time you will see that in order for your major professor to continue his/her research pursuits, funding from external sources such as NIH, NSF, USDA and the private sector are critical to the lab's existence. Many of the grants your faculty member works with provide funding in three or five year periods. Towards the end of the funding period, they will be looking for additional funds to sustain the project to conclusion. The faculty are very skilled in negotiating the grants process and will do their very best to find funds to continue or enhance their research, however, there is no guarantee the same pool of money will be available again or the same project will be viewed favorably by the grant agencies.

Don't despair, there are emergency and contingency resources available for short term gaps. If funding becomes an issue, talk to the Program Coordinator or Program Director as a break in funding will impact your health insurance and tuition remission eligibility. The sooner the concern is brought to our attention, the more options we have available to assist you.

If you are intent on working with one faculty member and RA funds are not available, you may consider taking a teaching assistantship (aka TA). The ERP Program's general guideline is that first year students are not encouraged to TA as it places a significant burden on the individual who is trying to take courses and establish a research project in the lab. Most TA positions require approximately 30 hours a week to manage including reviewing course materials, lab notes and discussion groups. This is done in addition to your course work and time in the laboratory. PhD students who are in the middle to end of their graduate student career are welcome to consider a TA position to gain experience in the classroom.

There are many opportunities to gain teaching experience including the K-Infinity fellowship, the Delta Project among others. If you are interested in pursuing one of these extra curricular activities, speak to your advisor first to ensure these additional commitments do not interfere with your research work or are a distraction to completing your degree.

Satisfactory Progress

Success in graduate school is heavily dependent on satisfactory progress towards degree. The Graduate School Academic Guidelines has a formal definition of satisfactory progress on page 70 of the 2006-2008 Handbook that you should become familiar with, but you should also understand what satisfactory progress means to your faculty advisor in terms of your performance in the laboratory. The ERP Program developed an annual evaluation form to be completed by both the student and advisor with a structure similar to a performance evaluation that you would experience in the workplace. We can not overstate the importance of regular, ongoing communication with your faculty member about both your research project and personal goals.

If your personal goals or circumstances have changed since beginning your course of study, it is vital you speak directly with your faculty member as soon as possible. In having this conversation, both you and your faculty member will be able to develop a mutually agreeable plan to adjust the research project workload and establish a timeline for completion with your advisory committee.

Sometimes it is not the degree goal that is a concern, but the laboratory environment has changed thereby impacting your progress to degree. If you find you would rather be elsewhere or anywhere but in the lab, we advise that you sit down and talk to your advisor

about your concerns; chances are your advisor has noticed this change in you and is waiting for you to come forward. Diminished productivity hurts not only you in your degree completion, but also the rest of the lab who may be counting your work to move forward in other projects. Chronic or unexplained absences are unprofessional in the workplace and could be grounds for termination or removal of funding.

See also the section on Life Balance in this document.

Schedules

One of your responsibilities as a graduate student is to arrange a mutually agreeable work schedule with your major professor and lab members. Having a relatively predictable schedule allows everyone in the lab to plan accordingly to meet deadlines and accomplish project goals. Some labs are very flexible with work schedules others require that you be in the lab at set hours due to experiments, animal needs or other circumstances. Be sure to clarify these expectations during the early weeks in the lab.

In turn, your major professor also has an obligation to inform you of his/her schedule as much as possible. The lab does not shut down while the supervisor is away; there is an element of trust that you and your lab members will continue to function in his/her short-term absence. A post-doc or lab technician should usually be around to help you trouble shoot urgent problems, otherwise make note of your question and discuss it upon return.

Meetings

Part of the learning experience is getting regular feedback from your major professor. During your first weeks in the lab, establish a regular meeting time with your major professor. This forum provides you an opportunity to discuss questions, results, ideas and up-date him/her on your progress with limited interruption. Once you agree on a time, be prompt and prepared for each meeting. In early meetings, the major professor may direct the conversation by asking about the project results, unexpected problems or surprises, however as you become more comfortable with the lab and your major professor, you should take the lead in the conversation.

You will also be expected to participate in lab meetings and journal discussions with your research group. These are forums to present work, trouble-shoot, congratulate each other and plan for the next phase of the project in addition to a social occasion.

The Program Seminar and other activities

Due to the highly diverse nature of the ERP Program, the weekly seminar series is the central gathering point for students and faculty. The seminar format of student presentations alternating with an invited guest speaker is designed to give you the opportunity to present your work in a friendly and supportive environment as well as to learn from respected scientists in the field. It is also important that the seminar have a

robust turn-out of students and faculty at each meeting. The more students and faculty come together out-side of their lab groups, the greater synergy the program will produce. This gives the appearance that the Program is strong and vibrant in the University community.

The Program Director and Program Administrator are regularly at each seminar and are happy to meet with you to address concerns. A little advanced notice will help us secure a meeting room where we can address your concerns in a confidential manner.

Authorship and Publications

Each lab has established practices for determining authorship credit and should be reviewed by all individuals involved in the project. If you are unclear about the procedure ask for clarification. There are many resources available from NIH and professional societies on authorship and conflict of interest. Take some time to review these guidelines throughout the course of your career.

Research Facilities and Computer Usage

Research Facilities:

Faculty members have research facilities available to meet the aims of their individual research. When entering the lab, take note to follow the appropriate procedures and protocols of the lab. If you need training on a specific technique or piece of equipment, ask for assistance.

Computer Usage:

In most labs, each student will have a personal computer with the appropriate software installed to meet the needs of preparing documents, proposals, and graphics. You should not alter the configuration or install programs not authorized by your major professor or network administrator. This includes the installation of "instant messenger" programs, games, or applications that would potentially interfere with the security of the data or functionality of the machine. The supervisor or network administrator reserves the right to delete files or applications that interfere with the stability or functionality of the machine.

If you are using your personal computer to connect to the campus network, you are responsible for following the campus computing guidelines regarding software licenses and virus protection as well as ensuring your data is safely protected. Each student has a personal online file storage area available through the MY UW portal. This is a secure way to store information, but have it accessible wherever there is an internet connection. Talk to your faculty member, network administrator or designated computer support people before hooking up your laptop.

Lab notes and related documents:

A hallmark of good science is keeping and preparing proper documentation of your work, however if you are being paid from a research grant, as most students are, your laboratory notes are the property of the granting agency and managed by the PI of the project, therefore your notes are NOT your own.

The Graduate School offers a 1.5 hour seminar on keeping laboratory notes. Check the Graduate School website for dates and times.

Student Travel

Developing your professional network is an important aspect of student training. One method is attending an annual societal or professional organizational meeting. Participation at these events is an excellent way to meet colleagues, learn new about new developments in the field from the leading experts, share your own research and discuss research in a relaxed atmosphere. It is expected that PhD students in their 3rd year or later will have presented at one meeting or conference.

To that end, all students are encouraged to submit abstract and poster materials to societies and professional organizations for presentation. Your major professor can advise you on groups relevant to your area of interest. When you have an accepted abstract or poster, you are eligible for a \$300 travel grant from the ERP Program to offset your costs. Keep in mind that only one travel grant per fiscal year is available and you must contact the ERP Program Coordinator with a copy of your abstract and confirmation letter to release the funds.

Where to turn for help and answers to your questions

There are many resources available to assist you with questions and trouble shoot problems; the key is to find the "right" place to go. Here are some suggestions on how to proceed and who to contact:

Speak with your advisor:

- Establishing a work schedule
- Lab protocols and when techniques are in question
- Course advising and project development
- Selection of Certification members
- Satisfactory progress in the lab

Primary departmental staff:

- Payroll and benefits
- Authorization for research credits
- Building keys/ security passes and permits (including parking)
- Departmental e-mail accounts and mailboxes

ERP Program Coordinator:

- Any question pertaining to the ERP Program including: course requirements, warrants, degree deadlines, the seminar, symposium and student progress issues
- Student records
- Travel funds and reimbursements
- Program Policy
- Student affairs issues or concerns
- Registration Holds placed by the Program Coordinator
- Satisfactory Progress in the Program including annual student evaluations

ERP Director:

- To review faculty members on your advisory committee
- Program policy
- Student affairs issues or concerns

The Graduate School:

- Questions about academic affairs not addressed by either the Program Coordinator or Director - includes harassment, ethical misconduct, academic misconduct etc...
- Fellowships and awards
- Degree conferral including review of PhD dissertations, deadlines, minimum degree requirements and residency requirements

Life Balance

We offer you some advice on seeking a balance between your academic and personal life. First you must realize that just because you want a graduate degree, doesn't mean you will get it. Considerable time, effort and sacrifice will be required to make this a reality. You have to establish your priorities.

Many problems that arise often have less to do with the student's ability to succeed in the course work and have more to do with external factors. One common problem is that the student's social/personal life interferes with course work or time in the lab. It is your responsibility to let your family, friends, significant others and parents know that you have commitments to your academics and lab work. Lost time on your social/personal life can not be recouped.

Graduate students with families can have an especially difficult time maintaining a reasonable balance between academics and family. We understand that as a parent, you have a significant responsibility to provide for your child. You should take great care in

establishing a work schedule that is realistic and achievable for your situation. If care giving duties are causing significant problems for you or members of your lab, ask yourself if it is fair to transfer your work onto others? Colleagues will understand that once in a while your family responsibilities take precedence over lab work as long as you get back on track and don't use this as a crutch to avoid making a decision on where your career is going. In cases where there is a serious illness of a parent, child or spouse, an extended leave of absence may be requested. Specific guidelines are available from the Personnel Office or the Program Office.

While your studies and research is of great importance to you, it is also essential to have a few non-lab interests to fill your time with. These outside interests can be a great stress reliever when your lab activities are leaving you frustrated. There are many free or low cost activities to take advantage of; check out the campus calendar for events, the Isthmus newspaper or the many bulletin boards around campus for announcements. Don't forget you have access to the campus fitness facilities (the NAT, SERF, the Shell) with a swipe of your campus id card. Schedules are posted on the Recreational Sports home page.

Final Comments

This guide is an evolving document created to give students some guidance on issues that may not be addressed in other "official" or formal documents. Each lab will have its own policies and procedures that take precedence over these general guidelines, however most of the comments provided here will be helpful to new students just entering the program.

As always, if you are unclear about any procedure or expectation, ask your major professor, the Program Coordinator or Director for assistance.

The Unofficial Guide- Part II Laboratory Etiquette

We hope that part one of this guide has provided you with some helpful tips in making the transition to graduate studies. Part two will provide tips in making the laboratory experience a positive one for everyone involved.

Joining a Lab

Selecting a lab is one of the biggest challenges you face. Your objective should be to find an environment that you are comfortable in, provides the type of training you seek and will further your career. Before you make a final selection, determine what is important to

you - availability of the supervisor, the training style of the faculty member (a lot of oversight, guidance when asked or needed, general independence), laboratory reputation, publication record, resources available, and the environmental factors that are not objectively quantifiable like personality, structure, competitiveness. Each lab has its pros and cons, your goal is to find the one that is right for you.

You will more than likely find someone in the lab who is more than willing to vent their frustrations with the lab or the supervisor, keep in mind that you are not the cause of these problems and cannot solve them. Spend the early weeks in the lab concentrating on getting acclimated to the environment, planning your project, and learning techniques and protocols. Speak with your advisor about any concerns as they arise.

Basic Guidelines

The laboratory is a communal place where you will interact with a variety of people including undergraduate students, graduate students, faculty, technicians, other support staff and post-docs. As a researcher, you are expected to develop and maintain a professional relationship with those that you work with.

1. Wear appropriate protective clothing (lab coat, safety glasses, gloves, coveralls, masks etc.) and follow all safety protocols in the laboratory. If you need training or are uncertain about a procedure, ask.
2. Keep your work area and bench clean. Chemicals and other agents can remain on the work surface for weeks and contaminate another experiment. Promptly clean up spills and broken glassware following safety protocols. Do not leave the mess for someone else to find.
3. Leave both the equipment and the lab area in better condition than you found it. If you used consumable supplies, re-stock them. Also if you notice supplies are running low, let the appropriate person know to re-order them.
4. Return cleaned and dry equipment to its proper location when not in use.
5. If you find that the equipment is not working, notify the lab manager or your supervisor. Again, don't leave it for someone else to find.
6. Plan ahead if you have a large project that will prevent others from using the equipment at peak periods.

Interpersonal Guidelines

Aside from following the basic guidelines above, developing and maintaining effective interpersonal relationships with your co-workers is essential. Often a productive lab group

can unravel because of a communication problem, either real or perceived. Here are some tips to keep in mind:

1. Keep the "water-cooler" discussion to a minimum in the lab. Discussing your weekend exploits are not appropriate topics of conversation in a work area and can be misinterpreted by others passing by. Catch up with your friends at lunch or after hours.
2. Remember sensitive topics of politics, religion, gender issues or cultural differences are not issues for discussion on lab time. These subjects invariably cause good relationships to become strained.
3. Keep personal business to a minimum on lab time. It is understandable that there are times when other businesses or individuals will need to reach you during work hours, but be considerate and discrete when you are discussing a sensitive subject such as medical information, finances etc in a communal area. If you have a cell phone, be considerate of others around you. Continue your call where you have some privacy or schedule time to return the call away from the lab.
4. Remember that personal opinions are just that. Everyone is entitled to theirs just as you are to yours. Opinions do not necessarily represent fact.
5. Lab time is not personal time to "convert" other people to your cause. This is against state work-rules and could be considered harassment.
6. Be a team player. There will be times when you are asked to pitch in and help another colleague meet a deadline or project goal. Do so willingly and to the best of your ability. Keep in mind that one day too, you will need help from your colleagues.
7. Get to know the post-docs and technicians. They have a wealth of experiences to draw from and are excellent resources to help you with your project.
8. Communicate regularly with your supervisor about the project, both the good and bad.
9. Remember that you are responsible for your own work. Support staff members are resources and are not to do your work or clean up after you.
10. Lean to be self-sufficient in handling routine tasks in the lab including clean up, restocking the paper trays, filling supplies, photocopying, mailing items etc. No task is beneath you.
11. Respect is not given out easily; it is earned over time through your actions.

Other Issues

Music in the Lab:

People have varying degrees of tolerance for listening to music in the lab. Ask your supervisor what the protocol is and be sensitive to the desires of the group. Some music is not appropriate for the workplace, if you are unsure, don't bring it. Choices of music in the lab should never become issues of contention. Choices and volume should be acceptable to all, and volumes should not be set to be audible beyond the room. Likewise, music at your desk should not disrupt others in the area. The growing popularity of personal MP3 players or iPod's allows you the freedom to listen to your own music without disturbing your colleagues, but they can also isolate you from the conversation (both good and bad). While listening to your personal music device, when someone approaches you with a question or to engage in conversation, take both ear phones out and give the person in front of you your full attention.

Dress:

The lab is your workplace and your dress should reflect this. Dress comfortably so that you can do your work with minimal distraction for yourself and others. Wear a lab coat or other protective clothing as needed. Remember that your clothing and personal appearance does leave an impression upon people, both positive and negative. You don't have to dress like a runway model, but you shouldn't look like you just rolled out of bed either, and personal hygiene becomes an issue if you become offensive. Your lab or building location (ie. Clinics, hospital) may have additional dress code guidelines, ask your supervisor what is appropriate or consult appropriate handbooks or websites for guidance. You may want to consider keeping a change of clothes at the lab incase of a spill or other contamination.

Telephone Usage:

A phone in the lab is provided for the express purpose of conducting lab and work related business. We accept the fact that there may be occasions where a personal call is received or made, however the lab phone number should not be given out as your "social number" to family and friends nor should you be placing social calls from the lab. Many buildings have a lounge area where personal calls can be made.

You may find that having a cell phone is a convenience or even your primary phone, however, this can be a distraction for others in your work area both because of the continued disruption of incoming calls or simply the voice level used when carrying out a conversation. When you are in the lab, if you must have your phone on, turn the ringer volume down or set it to vibrate and answer the call quietly and discreetly then return to work. We urge you to turn your phone off during lab hours so you can fully concentrate on the job at hand; many plans have voice mail included with the service. Also, don't leave your phone unattended at your desk so it rings non-stop, either take the phone with you or turn it off. Keep the calls to a minimum.

Email:

Each enrolled student is provided with a campus email address (@wisc.edu). Some departments may also have an email server and issue you an email address (@department.wisc.edu) which ever campus email address you use should be used for professional communications. Messages should be written using standard, business spelling and punctuation. Save the instant messaging shorthand for friends using another email addresses. Use special fonts, color coding, and formatting tricks minimally.

Think carefully about the contents of your email message before hitting the send button. Remember the reader only sees the words in front of them and does not hear your tone of voice or non-verbal expressions. What seems harmless to you; might be offensive to your reader.

Conflict Resolution-

Don't let little problems escalate into bigger problems that impact the functionality of the lab. If you have a concern, bring it up with the individual directly and try to work it out in a professional manner. If this is not possible, then address it with your supervisor to seek assistance. Refer to the Graduate Student Handbook for proper procedures for issues dealing with harassment, academic misconduct, ethical conduct etc.

Professional counseling resources including the Ombuds Office and your health care provider can also assist you in addressing individual concerns.

Professional Development-

Seek professional development opportunities throughout your graduate career through networking, giving presentations, publishing and honors and awards. These accomplishments will distinguish you from similar applicants. Look for mentors at each stage of your development. While your advisor may be a mentor, make connections with other people too.

Handling the networking, presentations and publishing your work can be guided by your advisor and through structured activities of the ERP Program. Seeking honors and awards is based very much your initiative and effort to both seek opportunities and follow through on applications. While you can not control the final outcome once an application is submitted, not applying assures you that you will not be a recipient, regardless of how valuable your work is.

There are several types of honors and awards that are valuable assets to your CV or résumé when applying for the first position following graduation.

Training Grant Funding: These awards are made to support a period of your graduate education, in some instances used to bring new talent into the field, other cases, to

support the critical scientific activity of a designated research project of interest to the grant agency. Benefits of Training Grant support generally include payment of both tuition and fees, a share of the health insurance premium and fixed stipend for typically two years pending satisfactory progress. Institutional awards made to existing programs will have a fixed number of positions that can be funded in any given budget year. A call for applications of eligible students will be announced before a selection committee makes final recommendations to the PI. Selection of applicants typically involves consideration of the student's academic credentials, a description of the research project or statement of interest, career goals / interests and recommendations by other faculty members. Current NIH training grants can only directly support US citizens and Green Card holders.

Individual Fellowships: Like training grant funding, individual fellowships serve a similar purpose in funding a portion of your graduate education. Individual fellowships are an attractive funding source because they directly support the student and in some cases be portable to another institution. Individual fellowships include both internally and externally funded opportunities from private funds/foundations, professional societies and government agencies and can be open to both US citizens/ Green Card Holders and International Students. Selection criteria of recipients varies by type of fellowship and organization, but most likely be based in part on your academic credentials, letters of recommendation, research project and career goals. Additional criteria may include membership within a group or organization, potential for career success, a personal or telephone interview or other activity. The amount of financial support for the fellowship can be a few thousand dollars to a multi-year award that covers tuition, fees, insurance, travel and supplies.

Travel Awards: Many professional societies sponsor competitive travel awards to help defray the cost of graduate students attending a meeting. When submitting your abstract for an oral or poster presentation, you should also consider applying for a travel award. A typical meeting in a major metropolitan area including airfare, registration, and hotel expenses can cost over \$1000; funds to defray the costs from your both your advisor's grant plus your own out of pocket expenses can be the difference between going to the meeting or not. Some meetings will formally recognize travel grant recipients at the business meeting, banquet or in the program.

Honors/Awards: It can be difficult or even uncomfortable to seek public recognition for your efforts so in many instances your actions and commitment to an activity or career will be noticed by others who can support your recommendation/nomination. Of course there are many, many well-deserving graduate students and advisors who should be recognized for their efforts, but are overlooked by selection committees. What is a student to do? If you know about honors and awards given by a particular organization, share the information with your advisor and colleagues about the nomination process. Sometimes awareness that an activity exists is all that is needed to get the process started. If you

know that someone has recently received an award, circulate the announcement to others in your group; again this might prompt others to look into submitting a nomination.

Leaving a Lab -

There are situations when transferring labs is in your best interest, at the completion of one degree, faculty retirement or in worse case situations irreconcilable differences. If you find that you are going to leave a lab for whatever reason, keep the following items in mind:

1. Give your supervisor reasonable notice.
2. Establish a transition period to complete projects and tasks as appropriate.
3. Inform your payroll person. A break in payroll can negatively impact your benefits, tuition remission, and fees.
4. Return all lab property, keys, notes and documents. Remember that your lab notes are the property of the granting agency under the stewardship of the PI.
5. Keep the departure as positive as possible. Don't spread negative comments about former co-workers, the faculty member or staff.

Final Thoughts

We hope that Part II of this guide is helpful for you. Most of these items can be applied to almost any laboratory environment on campus. Keep in mind that each lab environment has pro's and con's. Your goal is find one that works best for your situation.