

**KANSAS STATE UNIVERSITY**



**GRADUATE STUDENT HANDBOOK**

**2019**

## **Medical Emergency**

KSU employees in Manhattan that need medical care for a job-related injury or illness are to seek medical care as follows:

***Lif- threatening injury or illness:*** Call **911** or report directly to the Emergency Room at **Via Christi Hospital** located at 1823 College Avenue.

***Non-life-threatening injury or illness:*** Call (785) 296-2364. Mon. – Fri., 8 am – 5 pm for authorization for non-emergency treatment. The Kansas State Self Insurance Fund will determine where you need to go for the treatment. This is required prior to getting treatment to have the medical costs covered. After hours, call either 1(800) 323-6003 or (785) 323-6000.

**If an accident occurs, please report the incident to Liz Savage, SH 201, and (785) 532-4054. The follow-up Accident Injury Report is due in the Department of Human Capital Services within three working days of the accident/injury.**

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*Welcome to the Department of Grain Science and Industry!*

It is my privilege to welcome you to the department and wish you a rewarding, productive, and fulfilling experience with us. I look forward to getting acquainted with each of you in the coming months. Stop by my office if I can be of any help to you.

You are joining a special department. We have a unique program and a worldwide reputation for excellence. We have been adding new facilities, new faculty, and new research areas. Our vision is to be *the* global education, research and technology transfer leader for the grain and plant-based food, feed, fiber, fuel and bio-products supply chains. I am confident your presence and contributions to the department will help us achieve this vision!

This Graduate Student Handbook was prepared by the graduate faculty with input from previous graduate students. It will answer many of the questions you may have regarding policies and procedures at KSU and in the department, and will preview the academic sequence leading to your advanced degree. Consult the Handbook often and if you have questions, please refer them first to your major professor, or our Graduate Student Services Coordinator.

As your program progresses, you are going to face many opportunities, challenges, and rewards. Your major professor is your key to success! Maintain regular contact with him or her. Discuss your problems, concerns, needs, and aspirations. Report regularly on the progress of your assigned work and academic coursework. Conducting yourself with integrity and establishing a relationship of mutual respect and trust will make your degree progress go well. There are many people in the department who are available to help you including faculty, staff, and fellow graduate students. Be sure to get to know them and actively participate in our department!

My best wishes for success in your program of study and growth as a person and professional while you are with us.

Sincerely,

Gordon Smith  
Department Head and IGP Institute Director

## **I. INTRODUCTION**

### **Department History and Mission**

The Department of Grain Science and Industry had its beginnings in 1905 within the Department of Chemistry, where work on the milling quality of new strains of hard winter wheat was initiated. In 1910, a Department of Milling Industry was established in response to the urging of the Kansas Milling Industry. Major events in the growth of the department include addition of a Feed Technology degree in 1951 and Bakery Science degree in 1963. Department activities and the experimental mill were originally located in East Waters Hall, but destroyed by fire in 1957.

The present building that replaced the original mill was completed in 1961 and was named Shellenberger Hall. The Feed Tech building and East Waters Hall that also house departmental teaching and research activities are contiguous with Shellenberger Hall. Additional laboratory and pilot scale experimental facilities are located on Kimball Avenue across from the football stadium in the Biological and Industrial Value Added (BIVAP) building. These include the Hal Ross Flourmill and the International Grains Program (IGP) conference center at the same location. An operating feed mill and future teaching and research building will complete the site.

From its beginning, the department has been closely allied to the grain processing and utilizing industries. They continue to provide significant funding for facilities and programs, hire graduates, and provide advisory committees. The department's mission is closely tied to the needs of the grain industry, as well as traditional academic goals.

The mission of the department is to be a center of excellence in all aspects of grain processing, handling, storage, quality, and utilization. That will be accomplished using a multifaceted program of teaching, research, and technology transfer program. All department activities serve one or more aspects of this mission.

### **Grain Science and Industry Graduate Faculty and Current Areas of Interest**

#### **Sajid Alavi**

Associate Professor, Ph.D., Food Science, 2002, Cornell University. Extrusion technology, numerical modeling of food processing systems, imaging of microstructure of expanded food foams, and structure-texture relationships in food foams.

#### **Greg Aldrich**

Research Assistant Professor, Ph.D., Animal Nutrition, University of Illinois. Pet nutritionist, pet food formulation and product development, effects of pet food and ingredient processing on nutrient fortification, shelf-life, and safety.

#### **Subramanyam Bhadriraju**

Professor, Ph.D., Entomology, 1988, University of Minnesota. Stored grain and food-processing research entomologist, grain quality preservation, management of stored-product insects with pesticide alternatives, development and evaluation of integrated pest management programs for grain, food, feed, and retail industries.

#### **Hulya Dogan**

Assistant Professor, Ph.D., Food Engineering, 2000, Middle East Technical University. Grain processing and milling, food rheology and texture, physical, textural and structural characterization of food materials, engineering applications in grain and food processing, mathematical modeling, and process optimization.

#### **Jon Faubion**

Professor, Ph.D., Cereal Chemistry, 1980, Kansas State University. Cereal chemistry research scientist, experimental baking and novel oven technology, dough rheology, flour and ingredient functionality.

#### **Yonghui Li**

Assistant Professor, PhD. Grain Science & Industry, 2011, Kansas State University. Bioactive cereal proteins/peptides and lipids, protein viscoelasticity, protein interactions and impact on food quality, protein structure/chemistry/functionality relationships, food nanotechnology, functional cereal foods.

#### **Rebecca Miller**

Research Assistant Professor, Director of KSU Wheat Quality Lab, Ph.D. 1996, Cereal Chemistry, Kansas State University. Cereal chemistry research scientist, wheat and flour quality, wheat and flour testing methods, baked product quality.

#### **Chad Paulk**

Assistant Professor, Ph.D. Animal Science, Kansas State University. Animal Nutrition and Feeding, impact of feed diet and animal performance, and feed safety and integrity.

#### **Yong-Cheng Shi**

Professor, Ph.D. Cereal Chemistry, 1993, Kansas State University. Starch structure and functionality, physical, chemical, and genetic modifications of starch, enzymatic modifications of biopolymers, cereal starch digestibility and carbohydrate nutrition, uses of starch and other carbohydrates in food and other industries.

**Kaliramesh Siliveru**

Assistant Professor, Ph.D., Grain Science, 2016, Kansas State University. Grain Processing and Milling, Process Modelling and Simulation, Food Safety, Particle technology and materials handling, Physical, chemical, surface properties characterization and their correlation in food and feed materials.

**Gordon Smith**

Professor, Department Head and IGP Institute Director, PhD, Food Science, Texas A & M University, 1991. Food chemistry, chemical related food safety, processed meat science, product development, industry/university partnership, FDA & USDA regulatory affairs.

**Charles Stark**

Associate Professor. Ph.D. Feed Technology, 1994, Kansas State University. Feed mill management, feed processing, feed and ingredient quality assurance.

**X. Susan Sun**

Distinguished Professor, Ph.D., Agricultural Engineering, 1993, University of Illinois. Biological material process engineering, thermal and rheological behavior and functional properties of plant polymeric materials and ingredients, bio-based adhesives and biodegradable resins.

**Praveen Vadlani**

Assistant Professor, Ph.D., Biochemical Engineering and Biotechnology, 1994, IIT Delhi, India. Bioprocess science and engineering, fermentation, applied biochemistry and molecular biology, enzymatic and microbial bioconversion, bio-based chemicals, bioprocess technology development, and biofuels.

**Yi Zheng**

Assistant Professor, PhD. Biosystems Engineering, 2007, University of California, Davis. Bioprocessing engineering, biofuel, bio-based products, fermentation, bioprocess design/modeling, anaerobic digestion, enzyme catalysis, lignocellulosic biomass valorization, nutraceuticals/pharmaceuticals, lignin biotransformation, and omics.

**Teaching Faculty & Academic Areas of Specialization****Fran Churchill**

NAMA Instructor, B.S. Milling Science & Management-Operations, 1984, Kansas State University. Technical flour milling and plant operations.

**Huseyin Dogan**

Associate Engineer, Instructor and Stand Alone Minor Coordinator, B.S., Mechanical Engineering, Middle East Technical University, Turkey, 1989. Process flow diagram for grain operations, flour and feed technology, 2D and 3D plant design with AutoCAD.

**Jason Watt**

Buhler Instructor of Milling, B.S. Milling Science and Management – Operations, 2008, Kansas State University. Technical flour milling, Plant maintenance and operations

**Emeritus Graduate Faculty****Keith Behnke**

Emeritus Professor, Ph.D., Grain Science, 1975, Kansas State University. Feed technology research scientist, feed processing research as it affects animal nutrition.

**Fred Fairchild**

Professor, M.S., Milling Technology, 1964, Kansas State University. Feed and milling technology research scientist, licensed Professional Engineer (P.E.), feed, flour, pet food plant design and construction, plant maintenance, materials handling, and air quality permits.

**Ekramul Haque**

Emeritus Professor, Ph.D., Agricultural Engineering, 1978, Kansas State University. Grain processing technology scientist, food and feed grains processing, grain milling and energy.

**Finlay MacRitchie**

Emeritus Professor, Ph.D., Physical Chemistry, 1962, University of Sydney, Australia. Relationships between grain composition and functionality and application of this knowledge to manipulation of grain/flour properties in processing and breeding, physical chemistry of colloids and interfaces.

**Ronald L. Madl**

Professor, Director Bio-processing and Industrial Value Added Program, Ph.D., Biochemistry, Kansas State University. Antioxidant characterization in grain, ethanol co-product utilization, cellulosic ethanol.

**Paul Seib**

Emeritus Professor, Ph.D., Biochemistry, 1965, Purdue University. Research biochemist, starch and cereal grain carbohydrates chemistry and nutrition.

## II. SAFETY, HEALTH, HOUSEKEEPING, AND SECURITY

Health, safety and housekeeping are the shared responsibilities of each individual, the department, and the university. Faculty, students, and staff are entitled to safe working conditions. The university expects that each person in the department will work to make certain that his or her work practices and environment are safe. Everyone has the responsibility to point out, in a constructive manner, unsafe conditions or unsafe acts of others.

As you go about your work, constantly examine what you are doing and how you are doing it. In case of doubt, if you are carrying out an operation for the first time, or if you have little laboratory experience, consult your supervisor, major professor, or another knowledgeable resource for guidance and training. The best method includes the safe way to do the job and the only dumb question is the unasked question!

### Facilities & Safety Committee

The Facilities and Safety Committee is composed of faculty and a graduate student representative which meets regularly to consider the overall safety and appearance of the department. Periodic training sessions are held and **required** of all graduate students and other personnel in the department. The Committee makes periodic inspections of the departmental laboratories and pilot plant facilities to assure proper maintenance of those areas. Each laboratory and pilot plant is supervised by a faculty member, who may designate a graduate student to assist in keeping the facilities in a safe and orderly condition.

Children are not permitted in the laboratories. You should only work in the laboratories when there is another person near enough to help you in case of an emergency. You are encouraged to recommend changes or additions to the health, safety, and housekeeping procedures when you have new information or knowledge, or become aware of an unsafe practice.

- Know fire extinguisher locations.
- Know eye wash and safety shower locations.
- Consult material safety data sheets (MSDS) in your lab before starting experiment.
- Think in terms of safe practices constantly.
- Be familiar with every step of the job you are doing.
- Maintain an awareness of hazards involved.
- Guard your co-workers' safety as if it were your own.
- Know how to respond in case of an accident. Emergency telephone numbers should be posted near every telephone.

- Take responsibility for your personal safety at all times.
- Remember, the safe way is the best way.

**Employees in Grain Science are required to take on-line Safety Training Modules. These will need to be completed and the test scores received by the safety coordinator before students are able to work in the laboratory. In order to complete the online training the following steps must be followed:**

**The department will offer mandatory safety training sessions which all new graduate students will attend.**

**The results will be forwarded to the appropriate office in the College of Agriculture and they will inform your advisor/supervisor that you have completed the required training. See your advisor/supervisor for other required safety training.**

Familiarize yourself with these guidelines and take advantage of the periodic training provided by the department and university.

The names of persons responsible for each laboratory and their telephone numbers are posted on each laboratory door. Those people should be contacted to request permission to use the laboratory or equipment, or in case of emergency.

### Laboratory Use Permission

All laboratories in the department are the assigned responsibility of a faculty member. The faculty member will determine priorities for use and establish safety and housekeeping standards within department guidelines, and sign up procedures for the laboratory. All department members are required to obtain prior permission and operating training for use of a laboratory or piece of equipment.

**All equipment is to have a set of operating instructions, safety guidelines, training and sign up procedures. An operating manual for each area or piece of equipment is to be available in the immediate location of the equipment and a copy in the department central file. Anyone using departmental equipment is responsible for the receipt of proper training, following all safety and operating instructions, and cleaning the equipment and area following usage. Any damage or improper function of the equipment must be reported immediately to the responsible faculty member.**

### K-State Smoking Policy

As of June 1, 2018, the **smoking** of cigarettes, cigars, pipes or burning tobacco in any other form or device, as well as the use of electronic cigarettes, vaporizers, hookah or other water pipe devices and all other related

devices, **is prohibited** in university owned vehicles and on university property, except inside personal vehicles. University property includes, **on the Manhattan and Polytechnic campuses**: inside buildings and structures, outdoors, and within state-owned vehicles.

### **Maintaining Current Information**

As a K-State Student, you **must maintain** updated address and phone numbers through the use of **KSIS** online. As a K-State Employee you **must maintain** updated address and phone number through the use of **HRIS**. You are also to notify the GRSC Human Resource Specialist and your major advisor of any changes. If you are receiving an assistantship, **nothing** will be forwarded to your new address until this is changed.

### **Building Security**

Security is everyone's responsibility. University buildings are open for general use from 7 a.m. to 5 p.m. Monday through Friday. At all other times, doors should be locked, except when other arrangements have been made with the department head or a faculty member. Buildings are locked to safeguard the security of department facilities, equipment, and the safety of employees working in the building.

**Doors should never be propped open during times when they are to be locked.**

### **Department Keys**

Department keys are issued through the Department of Human Resource Office in SH 201. The keys are not to be duplicated and they must be returned before your departure after graduation.

**Failure to return keys will prompt Key Control to put a hold on your records, which will prevent securing your transcripts and diploma.**

To replace lost or stolen keys, you must contact the Human Resource Specialist. A replacement fee will be charge before a new key is issued.

Personnel with keys should not admit unauthorized persons. You are responsible for the behavior and activities of anyone you admit. If you observe a door open at times it should be locked, lock it if possible. Otherwise, call campus security at **(785) 532-6412**. Also, report any unauthorized persons in the buildings to campus security (approved by faculty 7/29/93).



### III. DEPARTMENT POLICIES

#### Working Hours

Those graduate students in the department of Grain Science and Industry who are on research assistantships (GRA) are considered unclassified employees for some benefit purposes. Employees appointed on a GRA **do not earn vacation or sick leave.** However GRA students on a 0.5 (FTE) appointment receive group health benefits. The normal 9-month Graduate appointments may be extended for three months in the summer, based on the need for services and availability of funding.

For Classified employees, the university has established normal working hours as Monday through Friday from 8:00 a.m. to 5:00 p.m., with a one-hour lunch period and one 15-minute break period within any four-hour period. Business ordering or other access to the support staff is restricted to this schedule. For unclassified employees, including GRAs based on the number of tenths (FTE) to which the graduate student is appointed, the student and his or her advisor will agree upon the exact workweek and hours.

#### Leave Policy

Graduate assistants **must** to receive approval (in advance) from their major professor for any time off. Graduate assistants must inform the HR specialist in the main office when they are out of the department for Personal Leave as well as for Department Official Leave.

For both un-sponsored and sponsored out-of-state travel, a Travel Request (TR) and leave slip **must** be submitted to your advisors support staff, 2-3 weeks before the date of travel. This time is necessary to allow for university approval. A step-by-step procedure is in the Appendix under *Professional Travel Report*.

#### Payroll Information

Pay periods are bi-weekly based on twenty-six weeks in a twelve month appointment. Bi-weekly pay periods will always begin on Sunday and end on the Saturday two weeks following, with the pay date on the second Friday following the end of the pay period. All students that receive an assistantship will also need to set up an electronic direct deposit, for payroll purposes, at the time of appointment.

**Non-Resident personnel who qualify for exempt status on their W-4 need to re-file the exempt status and W-4 each year.** Americans and Resident Aliens will need to re-file by December of each year for the next year. Non-resident Aliens will re-file in December of each year. The W-4 may be changed at any time during the year. W-2 tax information for all employees

will be mailed to personnel about December 31st of each year.

#### Appointment Information Applicable to non-U.S. residents

Non-resident aliens are required to have either an F-1 or J-1 visa or a Kansas State University on Campus Work Permit (issued by the International Student Center).

*The U.S. Department of Justice has established a system to verify employment eligibility (I-9 form) to prevent unauthorized employment. This form must be completed for all new employees and when the work permit for non-resident aliens has expired. The department's HR Specialist, examines and approves all necessary documents.*

*Graduate personnel with F-1 or J-1 visas, who are appointed to the department on assistantships, must obtain work permits from the International Student Center. Work permits are valid for the length of the passport, visa or until the I-20 form expires.*

#### Payment of Department Miscellaneous Fees

Some classes offered in the department require a fee for materials provided. All departmental course fees are collected in Shellenberger 203. When students are enrolled in more than one class with a special fee, they may write only one check to cover all charges. The department also accepts Visa, Master Card, American Express, and Discover credit and debit cards.

#### Parking in Loading Dock Area

The loading dock area in the back of Shellenberger Hall is needed to load and unload trucks making deliveries. Therefore, parking of vehicles in this area is NOT PERMITTED between 8:00 AM and 5:00 PM except under the following conditions:

- The person is a client of the department and obtains a "Visitor" permit from the Main Office, SH 201.
- Time parked will not exceed 1 hour except by permission of department head (a permit must be displayed) (approved by faculty 5/24/93).

Parking arrangements must be made in advance by contacting the main office in Shellenberger 201 or by contacting Monica Mafarlane at (785) 532-4052 or [mcmacfar@ksu.edu](mailto:mcmacfar@ksu.edu). Parking without authorization is subject to parking fines and possible vehicle towing.

## Ordering Equipment and Supplies Grain Science Purchasing Rules

All items purchased, whether on-campus or off-campus, campus must be requested through our Procurement Officer, Dustin Busick, located in the Grain Science Storeroom, SH220. All requests must begin with a Grain Science Department electronic “E-Draw Ticket.” Contact Dustin or your supervisor for a PDF fillable-form copy. After receiving the PDF copy, please create and save draw tickets as needed for your reference. Once an “E-Draw Ticket” has been saved on your computer, the best process of obtaining the items are as follows:

1. Ensure accuracy and completeness of required information: Date, Purchased from (vendor name), Phone number or other means of contact, Ship to, Quantity of the item, a simple description, and a catalog or Part number. Please feel free to attach other clarifying documents or website links to ensure accuracy of items requested. Also please clarify any specific shipping needs, such as, expedited or freight delivery methods. As needed please feel free to meet with Dustin to coordinate the purchase details.
2. Ensure accuracy of approval information: You are the “Requestor.” Add your supervisor as “Faculty Approval.” You must obtain the Account Number from your supervisor.

3. Email the E-Draw Ticket to Dustin at [dubusick@ksu.edu](mailto:dubusick@ksu.edu) and **copy your supervisor.** Your supervisor must be copied on the email or sign the actual document to ensure approval is given.
4. Dustin will place the order and respond with an order confirmation via email with an assigned Purchase Order (PO #) number for your records. Please keep this for future reference.
5. Another email notification will be sent when the item has been received and is ready for pickup in the Grain Science Storeroom.
6. If the item/service is with another department on campus, an Interdepartmental Requisition (IDR) form is required and can be obtained from Dustin at the GSI Storeroom, SH220.

In the event that Dustin is away from the office for an extended amount of time, the accounting office, SH203, can provide backup assistance for purchasing needs. A W-9 form (provided by the vendor) is required from any new vendor before payment can be completed. If you have any questions concerning purchasing procedures please contact Dustin Busick at (785) 532-1894 or [dubusick@ksu.edu](mailto:dubusick@ksu.edu).

#### IV. PLANNING AND INITIATING YOUR GRADUATE PROGRAM

First contact your major professor (**in person, if possible**). All forms and correspondence should be signed by the major professor and copies made for their records and for the official student file maintained in profession.

Because Grain Science graduate students may have different undergraduate majors, the pathway to achieving the desired outcome for the MS and PhD degree, requires tailoring the coursework to fit your particular situation. Students with a solid background in a basic science may need to become acquainted with food processing by taking the Fundamentals of Processing Grain for Food. Students coming from a grain science or food science background may find it more important to strengthening their understanding of chemistry or other basic sciences.

Initially, it is necessary to not only select the classes for the upcoming semester, but also, to consider classes to be taken the second semester based on offerings available at that time of the year.

Acquaint yourself with previous work done by the research group that you are joining. Whether your orientation to research involves searching the literature, developing laboratory techniques, or performing preliminary experimentation will depend on the opportunities presented to you. If your graduate work is supported by a graduate research assistantship, the assigned duties to perform on assistantship will no doubt serve to acquaint you with the workings of a laboratory as well as getting acquainted with other researchers in the group.

Before the end of your first semester, your major professor and you **will** develop a plan of study (a list of the courses to be completed and applied towards your graduate degree.)

You are required to maintain minimum B (3.0) grade point average. See the website <http://www.k-state.edu/grad/gscurrent/handbook/> for details regarding academic requirements. **If you have a graduate research assistantship (GRA or GTA) the number of credit hours you may take in a fall or spring semester is 6 (six)-twelve hours for a 0.4 full time equivalent (FTE) appointment and 6-10 hours for a 0.5 FTE appointment. If you have an assistantship in the summer, you must enroll for at least 3 (three) credit hours.**

#### Outcome Objective of the MS in Grain Science

Graduates of the MS program in Grain Science and Industry at Kansas State University will demonstrate:

1. Ability to solve advanced problems in the disciplines associated with the Grain Science and Industry Department.
2. Advanced knowledge and demonstrated expertise to compete in the scientific and industrial community.
3. Ability to plan and conduct research, and analyze research data with minimal direction from major professor.
4. Ability to generate experimental results and critically evaluate scientific information.
5. Ability to communicate effectively in electronic, written and/or oral forms.
6. An understanding and practice of professional and ethical responsibilities.
7. Leadership and effective collaboration.
8. Understand that learning and professional developments are a continuing life-long process.

#### MS Degree Requirements in Grain Science

1. Spend a minimum of one year in academic residency. Two full time years are the norm when on an assistantship.
2. A minimum of 30 credit hours of which 6 to 8 are for Master's thesis research (GRSC 899). At least 18 hours including the thesis/research hours should be at the 700-level and above. Courses at the 600-level may be included, but 500-level courses in the student's major area are expected to have been completed as undergraduate prerequisites to graduate study or as undergraduate deficiency courses assigned to admission and thus not included on the plan of study. Restrictions: (1) No course in the student's major area may be at the 500-level (2) Normally no more than 6 credit hours may be at the 500-level. No more than 3 (three) hours in "special problems" or other individualized courses may be applied to the Master's degree. Note: The Department of Grain Science does not offer a non-thesis MS degree. After you have completed your thesis research, written your thesis, and have assembled it in a form acceptable to your major professor, contact members of your graduate committee in regard to a time when they are available for the oral examination. When an acceptable date has been found and you have filled out the Graduate School form

requesting the scheduling of an oral examination, have the form first signed by your major professor and then personally take it to collect the signatures from the other faculty members, and the Graduate Program Chair before making a copy and submitting the original to the Graduate School. A copy of the schedule request form should also be taken to the Graduate Student Coordinator to be included in your official file, as well as a copy for yourself and for your major professor. It is also necessary for you to schedule a room in which the examination is held. Please contact Brenda to schedule 204 SH.

3. Your Graduate Committee will administer the oral examination in defense of your thesis, in which you display competency in appropriate areas of expertise, with your major professor acting as chairman. Be prepared to give a presentation about your research and defend your thesis by your response to questions. You should also be able to discuss the scientific principles that support this research or related investigation. Be well versed on your subject. All graduate students are required to submit an electronic version of their thesis, dissertation, or report. Detailed information about the K-State Electronic Theses, Dissertations, and Reports (ETDR) can be found at <http://www.k-state.edu/grad/etdr/index.htm>.

### **Outcome Objectives of the PhD in Grain Science**

Graduates of the PhD program in Grain Science and Industry at Kansas State University will demonstrate the following:

1. Scholarly achievement in basic science or engineering courses that provide a theoretical background relevant to their area of specialization and an understanding of a fundamental field that serves cereal science.
2. In depth knowledge in an area of specialization and mastery of necessary experimental tools and techniques.
3. Preparedness to compete with counterparts in science and industry.
4. Initiative and the ability to independently plan and conduct original scientific research.
5. Contribution of new knowledge that is substantive, significant, and relevant to current theory.

6. Submission of research findings in manuscript form suitable for publication in peer reviewed journals.
7. Good communication skills with the ability to report research findings to experts in the field and to the public.
8. Enthusiasm for learning and discovery and active participation in appropriate professional societies.
9. Interactive involvement with the instructional process in at least one undergraduate area.
10. Ability to initiate, develop, and present an original proposition for research.

### **Requirements for a PhD in Grain Science and Obtaining Candidate Status**

A minimum academic residency of one year is required. If an MS has been earned in the same discipline as the PhD, typically 3 years of study beyond the MS will be required.

In pursuit of candidacy for the PhD significant progress should have been made in the course work portion of the plan of study as well as progress in the PhD research. Success in the course work will be in shown by the grades awarded. Professional maturity and the demonstrated ability to perform original research independently require the judgment of the major professor directing the research.

In consultation with your major professor graduate courses should be chosen to maximize your ability to compete in your profession based on in-depth study in the area of your choosing and in closely associated supporting academic disciplines.

A MS in a relevant technical discipline is normally accepted as 30 credits toward the 90 total required for a PhD. However, not all MS degrees necessarily provide a suitable background, so you may be required to take additional courses. This is particularly true when transferring from various other disciplines where only a portion of the course work taken may contribute to your candidacy for the PhD. Therefore it is important to discuss your prior background courses by name, catalog number, and credits from your MS so that committee members can assess your preparedness. Typically 25-30 credits of total course work beyond the MS degree would be included. The remaining 30-35 PhD research credits complete the 90 credit university-wide PhD requirement.

The plan of study devised by the student and the student's major professor must be approved and signed by each member of the student's Graduate

Committee, the Graduate Program Director, the Department Head or person designated by the Graduate School. It must be accepted by the Graduate School. To avoid questioning by the Graduate School, a majority of PhD course work hours should be from those numbered 800 or higher. Courses in the 500-level in the student's major field of study may not be used on the Program of Study.

The last step in attaining candidacy for the PhD degree is a preliminary examination. The preliminary examination must be scheduled after most or all of the courses are taken, **at least seven (7) months before the final defense**, and preferably one year prior to the estimated date of completion of all research. Because a PhD is highly dependent on research initiative, demonstrated research capability and acceptable progress as judged by the major professor must precede scheduling of the preliminary examination, in addition to satisfactory progress in course work.

Prior to scheduling your PhD preliminary exam, the format prescribed by the major professor and a subject agreed on by the prospective candidate and his or her major professor, is submitted for approval of the student's graduate committee. When an acceptable subject for the exam is selected, the Graduate School form, (along with the plan of study annotated with dates and grades for courses taken) requesting the preliminary examination must be signed and submitted to the Graduate School.

Scheduling of the time of the oral and the examination room is the responsibility of the graduate student. Depending on the format of the examination it may be required that written communication be delivered to each member of the committee in a timely manner. For the oral portion of the exam two approaches have been used with success, one is the "original proposition" oral exam, and the developing a research approach to a topic assigned by the major professor and agreed to by the examining committee. Course work may also be revisited.

In the "original proposition" type exam, the graduate student originates an idea for a full blown research project. The student justifies the proposed research, its significance and its application and contribution to Grain Science. The originality requirement restricts the subject and approach to being wholly apart from the research work being currently done for the PhD dissertation. Advocating the original proposition to the examination committee requires conveying confidence and the reasonable probability of a success, presentation of a plan of attack, and convincing the audience of the value of the proposed

research, and why it should be supported. In such case a one-page abstract would be prepared for distribution to seek approval of the topic by members of the committee prior to investing the time required for preparing a full proposal. The actual prelim would be scheduled within two to four weeks. One to two days before the actual examination, a brief written outline of the proposed research, with a page limit agreed on in advance, will be distributed to each member of the committee.

In the oral preliminary format in which a topic is assigned to the student, the student exhibits originality in the way in which he or she approaches the research and plans how to conduct it. The written communications that accompany this oral exam are specified by the major professor and agreed on by the committee.

Passage of the written and oral preliminary exams, as voted on by the members of the committee, is documented by signatures of the committee members on the ballot provided by Graduate School. When the ballot is returned to Graduate School with signatures in the affirmative column, Graduate School will inform the student of "admission to candidacy".

Once candidacy is established, the candidate must maintain continuous enrollment until the dissertation is completed, accepted, and defended in the final oral examination. Prior to the final oral examination, Graduate School will appoint a chairperson to serve for the final oral examination. That chairperson will be from a department other than Grain Science. The person, who is acting as a representative of Graduate School, will examine what takes place in the Grain Science Department and presides at the actual examination.

In order to schedule the final oral examination for a PhD, a complete copy of the dissertation must have been read and approved by the major professor who will also have signed the Graduate School form requesting the scheduling of the final exam. A copy should also be given to the outside chairman who prior to that time may know nothing about the research other than the title of the dissertation. **A pre oral exam draft copy of the dissertation will be delivered to each member of the committee at which time the oral exam request form will be presented to them for signature; in most cases with the dissertation copy in hand and the signature of the major professor denoting approval.**

At least **two weeks** must be allowed between delivering the copy of the dissertation and the date of the exam. Upon the student's request the day and

hour of the exam will be scheduled with the Graduate School. Scheduling of the room for the exam and conveying the time and place to each committee member is the responsibility of the student. Upon passage of the final oral examination, the signed ballot is returned to the Graduate School.

The final copy of the dissertation will incorporate appropriate changes, editing, or furnishing of additional information or rewriting sentences for greater clarity. The Graduate School requirement for margins, type size, and other detail is clearly spelled out in information available from the Graduate School website.

All K-State graduate students are required to submit an electronic version of their thesis, dissertation, or report.

Electronic theses, dissertations, and reports (ETDR) submitted by K-State students are openly available through the K-State Research Exchange ([K-REx](#)) and are indexed by Google, Google Scholar, and other search engines. PDF is the required format for submitting an ETDR, but students have the option of including [additional](#) files, such as audio, video, datasets, etc. along with their PDF file.

This web site <http://www.k-state.edu/grad/etdr/> provides detailed information on ETDR [formatting](#) requirements, [templates](#) for writing your ETDR in Word and LaTeX, guidelines for using [Word](#) and troubleshooting problems, a checklist for [submitting](#) your ETDR.

Guidelines for eligibility for graduation in a particular term or participation in the Graduate degree confirming ceremony are clearly spelled out in publications and on the Graduate School website. <http://www.k-state.edu/grad/students/graduation/>

### **Research Requirements**

A common objective of the graduate program is to develop the ability for independent study and research. Your area of research is determined by you and your major professor. You may be asked to work on a continuing project, help to design a new project, and/or do some preliminary investigations.

There are many ways to approach a research project and your major professor will advise how to conduct your investigations. You will need to become familiar with experimental design, analytical procedures, data collection, analysis, interpretation, and scientific writing. Each graduate degree (MS or PhD) requires that you communicate your results in a seminar presentation and that you prepare a draft of a paper suitable for publication in a scientific journal or other appropriate forum.

As you conduct your work, you will need to operate within the accepted standards of behavior in the department. It may seem, at times, that graduate school demands more effort from you than you feel capable of putting forth. It may be a stressful time for some people. Try to be considerate of others around you by being a responsible worker. Learn how to use equipment before using it. Keep your work areas clean, free of hazardous chemicals, and safe. Arrange for repair or replacement if you break something. Do not borrow things without asking. The Department of Grain Science and Industry houses many graduate students, undergraduate students, faculty, and staff from many cultural backgrounds. We are all here to perform jobs to the best of our ability. Your cooperation is expected.

### **Criteria for Graduate Research towards Advanced Degree**

The scope of graduate research in the Department of Grain Science is the creation of new knowledge, its dissemination, and the education of cereal scientists and technologists. Furthermore, graduate students work towards full membership in scientific societies, learn and practice professional ethics; they attend technical meetings, make presentations, and work towards common purposes with their peers. The major research interests are different for each professor's group and range from basic to applied research.

All graduate students in Grain Science conduct research and write an MS thesis or PhD dissertation to satisfy requirement for the degree. Research results must be recorded properly in an official notebook. The MS and PhD dissertations are expected to yield research papers in peer reviewed journals.

A key to success in graduate education is a commitment to be the best in one's field and to work well with others. A commitment to be the best translates into many hours of work towards professional goals. Graduate students are expected to assist other students, research associates, and faculty to solve problems. They must respect and work well with personnel in clerical and facilities positions.

Research is a time-consuming activity by its nature. On any given research problem, a hypothesis is generated, experiments proposed, and materials and equipment gathered and assembled. When the first experiments have been completed, the outcome is often failure. Failure leads to a new hypothesis with a second round of experiments, and so forth, until understanding is satisfactory. Nevertheless, a graduate student with the proper academic background and initiative, who spends long periods

of time in the laboratory, can almost always be assured of success. Such a student will complete a thesis and the required publication(s) in a reasonable period of time.

Some graduate students have difficulty dedicating time to research, even though they excel in class work. Class work is structured with set schedules and clear objectives. Success in research requires the self-discipline to work long hours in the laboratory. Graduate students are expected to be at their desks or laboratories except for class, seminar, library work, illness, or an emergency. When absent for a period of time, a graduate student should leave a note on her or his desk, or should inform someone in the laboratory. A student who thoroughly understands the Department's aspirations for graduate education, and who works diligently with a cooperative attitude to satisfy those aspirations, will undoubtedly succeed in the graduate program.

The faculty in the Department can then recommend the MS or PhD graduate without reservation to a potential employer. The community of cereal scientists and technologists, even in the entire world, is small in number. A reputation established by a graduate student will be widely known among all cereal scientists and technologists. A good reputation builds esteem and an improved future for the individual and advisor, the Department, and the University.

Graduate students must keep the major advisor apprised of progress through frequent verbal and written communications. The format of these important interactions will depend on the professor. Some research directors may expect to view at any time an open research notebook on the lab bench. Another may ask for preparation of a written proposal. In some cases, short term goals of achieving readiness for presentation at an annual meeting will provide motivation. Be assured that your professional development and scientific maturation is foremost in the mind of your major professor and he or she has produced successful graduates with the approach used.

### **Keeping a Lab Notebook**

Lab notebooks are the official documentation of your research and serve as the basis for your thesis, dissertation, or patent application. In addition, the act of keeping a notebook prompts you to stop and think about your research, an essential component of investigative science.

1. Use a bound notebook with consecutively numbered pages. These can be obtained from the main office.
2. Make notebook entries in ink. Sign and date each entry.
3. Allow a few pages in the front of the notebook for a Table of Contents.
4. Write with enough detail so that another scientist could refer to your notebook and repeat the experiment.
5. Note appropriate literature citations, numbers of analytical methods, and any modifications to the previously described procedures. Sketches of equipment set-up or sample appearance may be useful.
6. Record the data collected in a table or other easy-to-read format. Attach computer printouts of spreadsheets, graphs, photos, etc.
7. Set aside time to make notebook entries. Record your thoughts regarding experimental results and the implications for future work. The act of writing often prompts new ideas.
8. Periodically, ask someone that can understand your research but is not directly involved to read your notebook and to sign and date in ink as a witness to establish your priority

### **Responsibilities of GRA Recipients**

Graduate students **may** receive a 0.5 FTE (Full-Time Equivalent) assistantship. These are 12-month appointments subject to renewal. If the student is not working for their advisor and registered for research hours, they may be taken off the Summer appointment. Graduate research assistants (GRA) sign an employment data sheet to become staff members of the University. As staff members, GRA's are entitled to the privileges and responsibilities of that status and they must abide by the University regulations. GRA's agree to work a minimum of 20 h/week. The holder of an assistantship must enroll in at least 6 (six) credit hours of coursework and/or research per semester. GRA's/GTA's should not hold any other job. Assistantships of 0.5 FTE provide the benefit of staff tuition rates.

**All students must have a Social Security Number in order to be appointed as a student hourly employee or as a Graduate Research Assistant.** The International Student center will help Non-US Citizens with the application at their orientation. Receipt of the number may take up to four weeks, and the student will not be allowed to work in the laboratory until the number is received. **If a delay of more than four weeks occurs, the Department Human Resource Office can request a substitute number for the student.**

The work assigned to a GRA involves assisting their major professor, research group, or the department according to need. Most of the work will be on a research project funded by a sponsor to satisfy a specific scientific or technological goal. The sponsor holds the University and the faculty member accountable for progress, successful completion, and reporting on funded research. State research funding is also obtained by successful proposals from professors doing research. GRA's funded from these sources are awarded by mutual agreement of the Department Head and the professor who proposed the project. Duties are primarily assigned by the major professor but may also include duties on behalf of the department. **Assigned duties are not necessarily related to thesis research.** Funding sources for an individual GRA may change as the need arises and the duties may change accordingly. In any case it is essential to produce results and report them to your major professor in a timely manner. You will benefit from direction and interaction at regular meetings and your development will be in evidence accordingly as it progresses.

A limited number of assistantships are awarded based on funds available, departmental needs, qualifications of students, and progress toward the degree. All assistantships require performance of a set of duties or the accomplishment of technical objectives. They are awarded for a fixed period of time and **may** be renewed depending on the individual's performance, progress toward a degree, and department resources. **Assistantships may be terminated for non-performance of duties or in case of insufficient funding.** The renewal of a contract in May and

August between a GRA and the Department of Grain Science depends largely on whether the student has demonstrated progress towards satisfying the objectives of a project and available funding. The duties and performance standards will be evaluated by the student's major professor using the "Annual Graduate Student Performance Evaluation" form (an appendix to this booklet) from the Department of Grain Science & Industry. A summary of the student's performance will be provided to the department annually and maintained in the student's official records.

Graduate students appointed as a GTA are eligible for a tuition waiver. Graduate students appointed on a full-time GTA appointment (0.5 FTE) receive a tuition waiver for a maximum of 10 hours in the fall and spring terms and 6 hours in the summer term. GTA tuition waivers are provided for tuition benefits only; students will be responsible for campus privilege fees.

The Kansas Board of Regents requires all prospective GTAs who are non-native speakers of English to achieve a: minimum score of 50 on the TSE (Test of Spoken English) OR minimum score of 50 on the Speaking Proficiency English Assessment Kit (SPEAK) OR minimum score of 22 on the speak section of the Internet-based Test of English as a Foreign Language (TOEFL iBT).

Disputes concerning graduate assistants (GTA/GRA/GA) are employment matters that should be originated with the appointing department and be addressed through normal supervisory channels.



## APPENDIX

The Appendix contains information on the following subjects:

- Annual Graduate Student Performance Evaluation (under review)
- Kansas State University Policies
  - Internet and World Wide Web Page Policy
  - Electronic Mail Policy
  - Patenting an Invention and Copyrighting Intellectual Works
  - Conflicts and Conflict Resolution
  - Graduate Student Rights and Grievance Procedure
  - Honor and Integrity System
- C.O. Swanson Reading Room
- Computer Network and Computer Lab
- Affiliated Agencies
- Travel Report
- Online Safety Training Modules
- HTML Links to Useful Web Pages

**Department of Grain Science and Industry**  
**Annual Graduate Student Performance Evaluation**

All MS and PhD students will provide their major professor with an annual report of progress in December. The report of progress outlined below follows the Graduate Program Assessment Criteria developed by Grain Science and Industry (GSI) Department graduate faculty. The GSI graduate faculty will use this information to perform an annual evaluation of his or her graduate student. The GSI graduate faculty will compile the performance evaluation results for their students and report this information to the department's Director of Graduate Studies for use in preparing the GSI Graduate Program Assessment Report. *(to be revised Fall 2009)*

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Student Name: \_\_\_\_\_

Degree: MS  PhD

Year admitted: \_\_\_\_\_

Term: Spring  Summer  Fall

New student orientation completed? Yes  No

Dept. safety training completed? Yes  No

**A. Research progress toward degree to date:**

**B. Course work toward completing plan of study and academic enrichment:**

Professional activities *(Respond to items C through I by letter below or on the reverse side)*

**C. Oral presentations** *(provide title, authors, and venue where the presentation was made, including dates),*

**D. Poster presentations**

**E. Refereed publications** *(include those submitted, in review, or in press),*

**F. Popular publications,**

**G. Meetings/Conferences attended** *(Please indicate key individuals you met and how attending the meeting helped you develop professionally),*

**H. Awards or honors received** *(List award(s) received and its significance),*

**I. Participation in departmental, college, and university activities** *including seminars and departmental service (This may include serving on departmental committees, student clubs).*

| 1. Degree Timeline  |  |   |   |
|---|--|---|---|
| PhD Learning Outcomes   | Early degree program   | Mid degree program  | Late degree program   |
| 1. Scholarly achievement in basic science or engineering courses that provide a theoretical background relevant to their area of specialization | <ul style="list-style-type: none"> <li>• Development of Program of Study with Advisory Committee.</li> <li>• Enrollment in core Grain Science courses</li> <li>• Attend graduate student orientation</li> <li>• Read the departmental graduate student handbook</li> </ul> | <ul style="list-style-type: none"> <li>• Continued enrollment in courses on Program of Study</li> <li>• GPA of 3 or higher</li> </ul>   | <ul style="list-style-type: none"> <li>• Completed courses on Program of Study and Graduate School</li> <li>• GPA of 3 or higher</li> </ul>   |
| 2. In depth knowledge in area of specialization and mastery of necessary experimental tools and techniques.                                     | <ul style="list-style-type: none"> <li>• Enroll in appropriate quantitative and analytical courses</li> <li>• Collect and review literature and identifying a research problem</li> </ul>  | <ul style="list-style-type: none"> <li>• Evidence of sound theoretical and experimental methods, data, lab technique, and quality and quantity of work</li> <li>• Have an approved experimental design</li> <li>• Complete seminar requirements</li> <li>• Pass preliminary examinations</li> </ul> | <ul style="list-style-type: none"> <li>• Capable of performing independent data analysis and interpret results</li> <li>• Research submitted for publication</li> </ul>   |
| 3. Good communication skills with the ability to report research finds to experts in the field and to the public.                               | <ul style="list-style-type: none"> <li>• Attend final defense presentations to observe presentation techniques</li> </ul>  | <ul style="list-style-type: none"> <li>• Participation and contribution at professional meetings</li> </ul>   | <ul style="list-style-type: none"> <li>• Completion of thesis, report, and/or manuscript</li> <li>• Completion of final oral presentation of thesis or report as assessed by submitting the final ballot to the graduate school.</li> </ul> |
| 4. Ability to initiate, develop, and present a worthy original proposition for research   | <ul style="list-style-type: none"> <li>• Develop a research proposal in the second semester and present it to Advisory Committee and the department</li> <li>• Research plan that is approved by the students committee</li> </ul>   | <ul style="list-style-type: none"> <li>• Formalized research plan that is approved by the student's committee</li> <li>• Helped prepare a competitive grant</li> <li>• Prepared research proposal for their preliminary exam</li> </ul>   | <ul style="list-style-type: none"> <li>• Helped prepare a successful competitive grant proposal that has been submitted for extramural support</li> </ul>   |

*Please attach your updated resume to this document.*

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**Reviewed by major professor:**

\_\_\_\_\_

Date: \_\_\_\_\_

**Comments by major professor:**

| 2. Degree Timeline   |  |  |  |
|--|--|--|--|
| MS Learning Outcomes   | Early degree program   | Mid degree program   | Late degree program  |
| 1. Ability to solve advanced problems in the disciplines associated with the Grain Science and Industry Department | <ul style="list-style-type: none"> <li>• Development of Program of Study with Advisory Committee</li> <li>• Enrollment in courses on Program of Study</li> <li>• Attend graduate student orientation</li> <li>• Read the departmental graduate student handbook</li> </ul> | <ul style="list-style-type: none"> <li>• Enrolled in core Grain Science courses</li> <li>• All term papers and homework assignments show evidence of ethical behavior</li> <li>• Maintain a GPA of 3 or above in registered courses</li> </ul>       | <ul style="list-style-type: none"> <li>• Completed courses on Program of Study as approved by the Advisory Committee and Graduate School</li> <li>• Maintain a GPA of 3 or above in registered courses</li> </ul>  |
| 2. Ability to plan and conduct research and analyze research data with minimal direction from major professor      | <ul style="list-style-type: none"> <li>• Reviewed literature on research project</li> <li>• Enroll in core course(s) as identified in the Program of Study</li> </ul>  | <ul style="list-style-type: none"> <li>• Enroll in graduate seminar class</li> <li>• Submit a research proposal and present it to advisory committee and department for input</li> <li>• Have an approved experimental design of research</li> </ul> | <ul style="list-style-type: none"> <li>• Participated and contributed at professional meetings</li> <li>• Prepared thesis for publication (e.g. report, or software)</li> <li>• All written portion of the student's thesis are original with respect to data and that correct citations are used</li> </ul> |

*Please attach your updated resume to this document.*

Student: \_\_\_\_\_

\_\_\_\_\_ Date

**Reviewed by major professor:**

\_\_\_\_\_

\_\_\_\_\_ Date

**Comments by major professor**

## **Kansas State University Policies Internet and World Wide Web Page Policy**

Kansas State University (KSU) information resource management policies govern all access to KSU computers and networks. These policies are established and maintained under the immediate authority and direction of the Vice-Provost for Academic Services and Technology.

1. Access to the Internet and the World Wide Web from KSU computers and networks is restricted to specially authorized registered users for academic, research, learning and administrative purposes. Public access to Kansas State University (KSU) computers and networks may be available from the Internet/World Wide Web or from within specially designated public facilities, such as the K-State Union or KSU Libraries.
2. Any web page or other type of file on any computer which presents itself in any way as an Official KSU Web Page or Official KSU File must comply with KSU information resource management policies and procedures. Specific responsibilities for the creation and maintenance of the contents of Official KSU Web Pages and Official KSU Files are defined in KSU information resource management policy and procedures. These responsibilities require the use of reasonable and appropriate means of protecting KSU private information, proprietary information, and intellectual property.
3. Any registered user may create an unofficial web page or unofficial file on a computer, which is owned and operated by KSU or one of its affiliated units as long as it complies with KSU information resource management policies and procedures. All such page contents must be for purposes as defined by the instruction, research or service missions of the university. Individuals, units, or groups creating unofficial web pages and files are responsible for and may be held accountable for the contents. KSU assumes no responsibility for the content of any unofficial web page or file. KSU reserves the right to restrict the quantity and availability of KSU computing and network resources for the purpose of creating, maintaining, and viewing unofficial web pages and files.
4. KSU reserves the right to remove, without notice, any web page or file (Official or unofficial) from any computer which is owned and operated by KSU or its affiliated units

which does not comply with KSU information resource policies and procedures.

5. Use of Kansas State University's names (i.e. Kansas State University, K-State, KSU), trademarks, official logos, or other intellectual property and creative works is governed by KSU intellectual property and creative works policies.

Unauthorized presentation of any web page or file as an Official KSU Web Page or Official KSU File or any unauthorized or illegal use of KSU computers and networks is prohibited.

### **Electronic Mail Policy**

This Policy clarifies the applicability of law and certain other University policies to electronic mail. Users are reminded that all usage of KSU's information technology resources including electronic mail is subject to all University policies including the Information Technology Usage Policy found at <http://www.ksu.edu/academicervices/docs/usage/html>.

The University encourages the use of electronic mail and respects the privacy of users. Nonetheless, electronic mail and data stored on the University's network of computers may be accessed by the University for the following purposes:

For items a-g, the extent of the access will be limited to what is reasonably necessary to acquire the information and/or resolve the issue.

- a. troubleshooting hardware and software problems
- b. preventing unauthorized access and system misuse
- c. retrieving University business related information\*
- d. investigating reports of alleged violation of University policy or local, state or federal law\*
- e. complying with legal requests (e.g.; court orders) for information\*
- f. rerouting or disposing of undeliverable mail,
- g. addressing safety or security issues.

*\*The system administrator will need written approval, including e-mail, indicating the extent of access that has been authorized from the Vice Provost for Academic Services and Technology or the Vice Provost's designee, to access specific mail and data for these purposes. At the time of initial contact with the individual(s) involved, the Vice*

*Provost for Academic Services and Technology, will inform the individual(s) involved that, should they desire advice on advocacy, they should contact the university ombudsperson. If an e-mail message is a university record (as defined in PPM, Chapter 3090) it is subject to the same retention period as the paper equivalent. E-mail messages which require long-term retention should be either retained electronically on retrievable media or printed, including all header and transmission information, and filed with their electronic or paper equivalents by the sender/recipient.*

To the greatest extent possible in a public setting individuals' privacy should be preserved. However, there is no expectation of privacy or confidentiality for documents and messages stored on University-owned equipment. Users of electronic mail systems should be aware that, in addition to being subject to authorized access, electronic mail in its present form cannot be secured and is, therefore, vulnerable to unauthorized access and modification by third parties. Receivers of electronic mail documents should check with the purported sender if there is any doubt about the identity of the sender or the authenticity of the contents, as they would with print documents. Users of electronic mail services should be aware that even though the sender and recipient have discarded their copies of an electronic mail record, there may be back-up copies of such electronic mail that can be retrieved.

University electronic mail services may, subject to the foregoing, be used for incidental personal purposes provided such use does not interfere with University operation of information technologies including electronic mail services, burden the University with incremental costs, or interfere with the user's employment or other obligations to the University.

***Electronic mail may constitute a public record like other documents subject to disclosure under the Kansas Open Records Act or other laws, or as a result of litigation.*** However, prior to such disclosure, the University evaluates all requests for information submitted by the public for compliance with the provisions of the Act or other applicable law. In addition, electronic mail may constitute University records subject to the University's Retention of Records Policy (PPM, Chapter 3090). As such, they may need to be retained for longer than an e-mail system is capable of retaining them. It is the responsibility of the sender/recipient to determine if a particular e-mail message constitutes a university record.

Incidental personal electronic mail which is not subject to the Retention of Records Policy may be destroyed at the user's discretion.

Faculty, unclassified professionals, and classified employees may not suppress publication of (e.g. unlist) their University Computing ID in the on-line white pages, K-State Phone Book or other official publication of Kansas State University. Exceptions for special circumstances must be approved by the Vice Provost for Academic Services and Technology (VPAST) or official designee.

Students may unpublish their e-mail address by contacting the University Information Technology Help Desk and requesting that their University Computing ID be unlisted. Faculty and staff who are also students may not suppress publication of their University e-mail address.

Violations of University policies governing the use of University electronic mail services may result in restriction of access to University information technology resources in addition to any disciplinary action that may be applicable under other University policies, guidelines or implementing procedures, up to and including dismissal.

In January of each year the Vice Provost for Academic Services and Technology will report to the Faculty Senate regarding cases dealt with that year. For privacy purposes all names will be omitted.

## **Patenting an Invention and Copyrighting Intellectual Works**

The business of a university is the creation and dissemination of new knowledge. Patenting an invention or publishing copyrighted work and putting it to public use are valid means of accomplishing this objective.

Accordingly, the University encourages the inventive process and, within the limits of financial practicality, can often provide advice and assistance in bringing inventions to the point of public use.

In the sense used here, an "invention" has a presumed commercial use and value. From this, certain caveats follow as a consequence:

1. Disclose first, publish later. Disclosing your invention by no means prohibits publication; on the other hand, premature publication can have both legal and tactical effects on the University's efforts to patent and commercialize it.

2. Disclose your idea verbally or in a brief memorandum to Kansas State University Research Foundation (KSURF) as soon as the invention is clearly conceptualized. It is not wise to wait for reduction to practice. KSURF can assist you in completing the disclosure form.
3. Leave procedural questions to the KSURF specialists. For example, Federal funding does not usually impede commercialization. What constitutes a patentable invention can sometimes be a complex legal question.

This process and your entering into it must be done only after informing and consulting with your major professor.

*Refer to Kansas State University Handbook 2007-2008, Appendix R: Intellectual Property Policy and Institutional Procedures (approved by Faculty Senate on May 15, 2002) for detailed information. This document describes K-State's policies and associated institutional procedures for intellectual property.*

### **Conflicts and Conflict Resolution**

Conflict between a faculty member and a student can arise because of misunderstanding, lack of communication, differences in opinion, and improper actions. Understanding the basis of the conflict is critical in resolving it in timely fashion. Openness, honesty, clarity, confidentiality, and documentation are important in addressing and resolving a conflict. It is very important to recognize that all conflict should be addressed immediately without any delays. The first step is for the faculty member and the student to try to resolve conflicts amicably. It may be appropriate to involve a neutral third party, such as the department head, to mediate in resolving a conflict. All concerned parties in a conflict should try to seek a win-win solution. There are also university grievance procedures (see below) for conflict resolution. But it is desirable to resolve all conflicts internally within the department.

### **Graduate Student Rights and Grievance Procedure**

Every graduate student has:

- a. Freedom of inquiry, conscience, expression, and association and the right to petition for the redress of grievances.
- b. The right, to the extent permitted by law, to have any information about his or her opinions

and associations unrelated to academic performance or assigned responsibilities that has been acquired by professors or administrators in the course of their work as instructors, advisors, or counselors held confidential at his or her request and not disclosed to others without his or her consent.

- c. Freedom from unfair treatment by faculty or administration in the assignment and evaluation of academic work toward the completion of requirements for a particular course.
- d. The right to due process in the conduct of proceedings pursuant to the provisions of this document or of any proceedings conducted under any other provisions of any other rule or regulation governing Kansas State University.
- e. The right to immunity from reprisal in the form of University disciplinary action or proceedings for seeking redress pursuant to the provisions of this document.

Every graduate student is responsible for:

- a. The exercise of applicable rights and freedoms, as enumerated above, in a manner that does not materially and substantially interfere with the requirements of appropriate discipline in the operation of the institution nor infringe upon the rights of other students, faculty, or staff.
- b. Completing the requirements and meeting the standards of any course in which he or she is enrolled.
- c. Understanding the legal and ethical standards applicable to scholarship in general and to the student's discipline, and understanding the policies and procedures that the University has in place to ensure compliance with these standards.

The *Graduate Handbook* contains general rules and procedures governing graduate education developed by the Graduate Council. In addition, each graduate program may have more detailed departmental or program guidelines that specify how that degree program operates within general Graduate School policies, and what graduate students can expect during their graduate career. If departmental or program policies are inconsistent with Graduate School policy, the Graduate School policy is the overriding policy.

For more information, visit the Graduate Handbook, Appendix A. Graduate student Rights and Grievance Procedure web page at: <http://www.k-state.edu/grad/graduate-handbook/appendixa.html>

## Honor and Integrity System

Kansas State University has an Honor & Integrity System based on personal integrity which is presumed to be sufficient assurance in academic matters one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor & Integrity System. The policies and procedures of the Honor System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning.

A component vital to the Honor & Integrity System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, *whether or not* it is stated: **"On my honor, as a student, I have neither given nor received unauthorized aid on this academic work."**

A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

For more information, visit the Honor & Integrity System home web page at:  
<http://www.ksu.edu/honor>

## C.O. Swanson Reading Room

303 Shellenberger Hall  
8:00 a.m-5:00 p.m. (M-F)

The Swanson Reading Room collection consists of monographs and serials on the subjects of bakery science, feed science, milling science, extrusion, technology, grain storage, and other topics related to the study of cereal grains. Monographs are cataloged by the Library of Congress classification system. Serials are in alphabetical order on the shelves.

**All items in the Swanson Reading Room ARE NOT TO BE REMOVED FROM THE ROOM!**

## Computer Network and Computer Lab

105 Shellenberger Hall  
8:00 A.M. to 5:00 P.M. (M-F)  
Computer support - [grscsupport@listserv.ksu.edu](mailto:grscsupport@listserv.ksu.edu).

When you register for classes the first time, the University will assign you an EID (electronic identification number). Be sure that you remember your EID and password because you will need it to access the university computer network and e-mail, future registration, and on other occasions. It will be on the University Directory which is publicly

available over the internet. Your EID will be reported on your appointment paper (EDS). The Department HR office will also use the EID for the department phone list and will be used by other people to contact you. The password for your EID account must be changed twice a year. Please look for email notices about when it is time to change your password.

When appointed as a graduate student, the department HR personnel officer will notify the network computer administrator (Suzan Adams) requesting establishment of your account and incorporating your information into the department computer local area network. You will be contacted, by e-mail, with your account information. The login will be your EID and a temporary password will be assigned that must be changed the first time you login. You are allowed 150 MB of disk space on the GRAINSCIENCE server. The drive you will save to is Y:.

Upon creation of your account, you will be added to the Grain Science website – <http://grains.ksu.edu> and added to the graduate student listserv, [grscgradstudent@listserv.ksu.edu](mailto:grscgradstudent@listserv.ksu.edu). For the Grain Science website, basic information will be there about you, but if you want more detailed information, you must email that to [suzan@ksu.edu](mailto:suzan@ksu.edu). Within the Grain Science website, there is also an intranet for faculty/staff and graduate students. This is a login only portion of the website and contains information such as phone lists, leave reports, frequently used forms, calendars, etc. It is also the location where you will check in and out equipment and reserve rooms for meetings, etc. An intranet account will be created for you automatically and the information emailed to you. Point of contact for the Grain Science intranet is Suzan Adams at [suzan@ksu.edu](mailto:suzan@ksu.edu).

Your email address will be the same as your KSU email address ([eid@ksu.edu](mailto:eid@ksu.edu)). You can access your email via the University webmail system (<http://webmail.ksu.edu>).

The Grain Science computer lab is located in SH105. It has 10 computers in the lab (8 sit down and 2 stand ups) and 2 HP LaserJet printers. These are all Windows XP systems, with AutoCAD 2006, Office Professional 2003 and Adobe Acrobat Professional 8 installed on them. You may not install your own applications on these systems, nor save your files on the computer. Please use your Y: drive or other media to store your files. We also have a table for study space in the lab. There are network



cables there, if you have your own laptop and want to access the internet.

You do not need a network account to use the computers in the computer lab (SH105). These machines automatically login. You only need to login with your own network account if you need to access the network drives.

If you do use your own computer anywhere on campus, you must have a current antivirus software installed AND have your Windows Updates current. To obtain Trend Micro, the antivirus that K-State provides a site license for, please go to <http://www.ksu.edu/antivirus> and download and install this on your machine. This is free for all university employees and students.

There is a student computer assistant in SH105A who works part time and is available for help in the computer lab. If you do have problems/requests, please email [grscsupport@listserv.ksu.edu](mailto:grscsupport@listserv.ksu.edu). The email will go to both Suzan Adams and the student computer assistant. We do have wireless internet in Shellenberger Hall. Food and drink are not allowed in the computer lab.

### **SH105 Computer Lab Printing Policy**

We have 2 printers located in the SH105 computer lab. Each of these printers have a cost per page of .05 cents.

Undergraduate students are given \$25.00 worth of printing per school year.

Graduate students are given \$50.00 worth of printing per school year.

If you run out of print credits and would like to add more, you must see someone in SH203 (the accounting office). You will pay the amount you want added to your printing account and then it will be added. Please allow 1 day for the print credits to show up on your account.

If you have any other printing questions, please email Suzan Adams at [suzan@ksu.edu](mailto:suzan@ksu.edu).

### **Affiliated Agencies**

#### **International Grains Program (IGP)**

IGP was established in 1978 within the Department of Grain Science and Industry by the various grain commissions, after approval by the Kansas Legislature. The program promotes worldwide marketing of U.S. wheat, corn, soybeans, and sorghum through courses, workshops, and seminars on various phases of grain processing, handling, utilization, and marketing. IGP is a cooperative

effort of K-State, governmental agencies, Kansas Corn, Sorghum, Soybean, and Wheat Commissions, and the grain trade and industry.

#### **U.S. Grain Marketing Research Laboratory**

As part of the U.S. Department of Agriculture, the Grain Marketing Research Lab's mission is to help solve problems relating to harvest, storage, marketing, and utilization of grains. Major research involves wheat and corn; other investigations include rice, sorghum, barley, oats, soybean, and triticale. Multidisciplinary research is done in cooperation with K-State, other federal labs and agencies, and with various institutes, trade associations, and companies. Located on a 12-acre site in Manhattan, the organization was established in 1971. This department has a long history of collaboration with scientists from the USDA laboratory, dating from the time when they were actually housed on the campus.

#### **American Institute of Baking (AIB)**

The American Institute of Baking, serving the baking industry and allied trades, moved from Chicago, where it began in 1919, to Manhattan in 1977. Students from throughout the United States and many foreign countries study at AIB in three main programs: Education, Research, and Sanitation. AIB cooperates with this department in a number of ways, including teaching a special Winter inter-session course for our baking students. That course is occasionally taken by graduate students involved in baking research.

#### **Travel Report**

1. For all travel on an account, the account number must be listed on the travel request. Each faculty member is responsible for making sure he/she has funds to pay for the travel in the account listed whether for the faculty member or the student.
2. When a travel is personal, you can submit your online leave request form to the personnel specialist. Otherwise, the official online request form should accompany your travel request form.
3. The travel processor will prepare a Travel Form to be signed by the Business Manager or the Department Head and then the claimant (person traveling).
4. The claimant is to pay for all expenses, and then claim reimbursement from the state.

5. After travel is completed, all travel expenses incurred by the claimant will be turned into the travel processor. A detail of all expenses will be done on a travel expense form with all ORIGINAL RECEIPTS (i.e. hotel, rental car, meeting registrations payments). No copies will be accepted.
6. The travel reimbursement form will then be prepared and the claimant and Department Head will sign for reimbursement. This form is then sent to voucher audit and the claimant will receive payment within 2-3 weeks.
7. When travel is all in-state, an advance travel request is not required. However, reimbursement of expenses is handled in the same manner.
8. If a state employee uses a state vehicle from the Department or the Motor Pool, the spouse cannot travel with the employee unless they are also an employee traveling on state business.
9. When registration fees are paid and meals are included as part of the registration, the per-diem allowance for those meals will be deducted from the per-diem allowed reimbursement amount for meals for that day.
10. Please confer with the travel processor if there are questions on these procedures.

### Safety Training Modules

In order to complete the online training the following steps must be followed:

The department will offer mandatory safety training sessions which all new graduate students will attend.

The results will be forwarded to the appropriate office in the College of Agriculture and they will inform your advisor/supervisor that you have completed the required training. See your advisor/supervisor for other required safety training.

### HTML Links to Useful Web Pages

If you are reading this from MS-Word on a computer that is connected to the internet, you should be able to access these hotlinks by a **Ctrl-Click** on the link. If you are reading this from a PDF file or a hard copy, you may enter the URL directly from the following appendix contents list.

#### K-State Graduate School

<http://www.ksu.edu/grad>

#### Courses at Kansas State University

The following information can be found at

<http://courses.k-state.edu/>

- Find a major
- Enroll in classes

#### Course Schedules

Explore the schedule of courses by semester, college, and department.

<https://courses.k-state.edu/courses/schedules.html>

#### Final exams schedule:

<http://courses.k-state.edu/exam-schedule.html>

#### K-State Graduate Catalog

<https://catalog.k-state.edu/index.php?catoid=41>

#### Graduate Degree Programs

<https://www.k-state.edu/grad/academics/>

#### Research at K-State

<https://www.k-state.edu/research/>

#### Academic Calendar

Enrollment, drop/add, holidays, commencement, grade schedules, finals, and more.

<https://www.k-state.edu/registrar/calendar/>

#### Accessing your Student Information (KSIS)

Enroll, get grades, change address, check financial aid, order parking permit, athletic tickets, yearbook, and more.

<https://ksis.k-state.edu/>

#### K-State Online

<https://online.k-state.edu/>

#### Hale Library Recovery Plan

Library services branch locations, IT services, interlibrary loan service, Ask A Librarian service, and Hale recovery updates.

<http://www.k-state.edu/hale/>

#### All University Policy and Procedures

<http://www.k-state.edu/policies/>

#### Graduate Handbook

The Graduate Handbook was developed by the Graduate Faculty through the recommendations and actions of the Graduate Council. The policies and procedures outlined are designed to insure high standards in graduate education at Kansas State University, while providing for flexibility in policy implementation. The Graduate Council expects each

graduate program to build on this foundation to achieve their programmatic vision of excellence.

The Graduate Handbook is published in hardcopy only occasionally. The electronic version can be found at <http://www.k-state.edu/grad/graduate-handbook/>

You may also reach the Department of Grain Science and Industry specific graduate school page at:  
<http://catalog.k-state.edu/content.php?navoid=139&catoid=2>

It lists detailed information about the faculty, programs, admission, assistantships and general coursework and research requirements as well as a list of the graduate-level courses taught in this department.

#### **Student Guidelines – Master’s Students**

<http://www.k-state.edu/grad/students/masters/index.html>

#### **Student Guidelines – Doctoral Students**

<http://www.k-state.edu/grad/students/doctoral/index.html>

#### **Graduate School Forms**

<http://www.k-state.edu/grad/academics/forms/>

#### **Theses, Dissertations and Reports**

<http://www.k-state.edu/grad/etdr/index.html>

#### **Graduation and Commencement Information**

<http://www.k-state.edu/grad/students/graduation/>

#### **Resources for faculty and researchers**

Compliance information: Research involving human subjects, animals, recombinant DNA, infectious agents, or toxins of biological origin

<http://www.k-state.edu/comply/>

Faculty Awards Management:

<http://www.k-state.edu/research/faculty/awards/>

Funding opportunities: Links to funding bulletins, databases, sources, grant writing resources.

<http://www.k-state.edu/research/faculty/funding/>

Proposal preparation: Forms, information on electronic submission, preparation information.

<http://www.k-state.edu/research/faculty/proposal/>

**Grain Science & Industry**  
**Graduate Student Fellowships and Awards**  
Annual date for the award submission is March 1.

Please send required information to:

Dr. Yi Zheng, yzheng@ksu.edu

**General Considerations for all Fellowships, Scholarships, and Awards:**

- To be considered eligible for these awards a student must be at least 1 semester away from graduation (except where specifically noted below).
- All award nominations should include evidence of scholarly research, its significance and student's contributions and accomplishments.
- Selection will take into consideration demonstrated pursuit of professional development of nominated students, including active participation and attendance in Department Seminars.
- Students may apply for more than one award but, no student shall receive more than 1 award per year.

**Outstanding Graduate Student Award**(Sponsored by Corn Products, International)

**PURPOSE:** An Award in the amount of \$2,000 will be awarded to an outstanding Ph.D. student and \$1,000 to an outstanding M.S. student excelling in academics and contributions to research in Grain Science.

**ELIGIBILITY:** Requirements for a Ph.D.: Student: has spent a minimum of 2 years in the program; has a GPA of 3.5 or higher; and is in good standing with the Graduate School (no record of probation).

Requirements for an M.S.: Student: has spent a minimum of 1 year in the program; has a GPA or 3.5 of higher; and is in good standing with the Graduate School (no record of probation).

**SUBMIT:** Current CV/Resume; letter of recommendation from the major professor and two additional letters of recommendation (one can be from a peer).

**Dr. C.E. Walker International Graduate Student Fellowship**

**PURPOSE:** To honor Dr. Chuck Walker for his dedication to helping international students, and to provide financial assistance to an international graduate student enrolled in Grain Science & Industry; established by TMCO Inc. of Lincoln NE.

**ELIGIBILITY:** Must be an international graduate student enrolled in Grain Science & Industry at the M.S. or Ph.D. level. Funds will be awarded as a Graduate Research Assistantship in baking science and technology; rheology applied to cereal grains or their products; or to cereal chemistry related to baking. Support is renewable annually providing the student shows evidence of continued satisfactory progress; M.S. is limited to 24 months; Ph.D. is limited to 36 months.

**SUBMIT:** Current CV/Resume; letter of recommendation from the major professor and two additional letters of recommendation (one can be from a peer).

**Dr. Paul A. Seib Graduate Student Fellowship**

**PURPOSE:** To honor Dr. Paul A. Seib and to provide financial assistance to graduate students at the M.S. or Ph.D. level properly enrolled in Grain Science & Industry including newly admitted graduate students.

**ELIGIBILITY:** One award for a graduate student in Grain Science & Industry at the M.S. or Ph.D. level. Funds will be awarded as a Graduate Research Assistantship in the field of *carbohydrates*. Support is renewable annually provided the student shows evidence of continued satisfactory progress; M.S. is limited to 24 months; Ph.D. is limited to 36 months.

**Current students may apply by submitting:** Current CV/Resume; letter of application and two additional letters of recommendation.

**Anheuser-Busch Fellowship**

PURPOSE: To provide support to worthy full-time M.S. or Ph.D. students enrolled in the Department of Grain Science who have shown the potential to contribute to the scientific community.

ELIGIBILITY: Up to two annual awards are to be made up to \$1,500 each will be made to full-time graduate students in Grain Science & Industry who have shown potential to contribute to the scientific community and have demonstrated outstanding academic achievement and/or financial need.

SUBMIT: Current CV/Resume and letter of recommendation from the major professor.

**Rene Buhler Memorial Scholarship**

PURPOSE: To perpetuate the memory of Rene Buhler on the campus of Kansas State University and to provide financial assistance to M.S. and Ph.D. students enrolled in cereal chemistry and technology in Grain Science & Industry.

ELIGIBILITY: One annual award of up to \$1,500 will be made to a full-time graduate student properly enrolled in the department of Grain Science & Industry. Recipient shall be in cereal chemistry and technology with specific reference to research in the areas of grain handling, milling and storage.

SUBMIT: Current CV/Resume and letter of recommendation from the major professor.

**Cain Land and Grain Value Added Agriculture Scholarship**

PURPOSE: To honor Daniel O. and Theresa A. Cain, agricultural leaders in eastern Kansas committed to the concept of creating more value from renewable resources.

ELIGIBILITY: One annual award of up to \$1000 for a graduate student in the department of Grain Science & Industry with a minimum GPA of 3.0. Recipient must be a graduate student in the department of Grain Science conducting innovative research identifying new, or enhancing recognized, value traits in agricultural products; or in the conversion of renewable resources into higher value products.

SUBMIT: Current CV/Resume and letter of recommendation from the major professor.

**Majel M. MacMasters Memorial Achievement Award**

PURPOSE: To honor and perpetuate the memory of Dr. Majel M. MacMasters, an outstanding teacher and scientist in the Department of Grain Science and Industry.

ELIGIBILITY: One annual award of \$750 to any student entering the second year of a M.S. or Ph.D. program in Grain Science with an emphasis in cereal chemistry in the Department of Grain Science and Industry. The individual selected will have demonstrated exceptional academic and practical achievement and the potential for superior professional service to cereal science or to the industry based thereon.

SUBMIT: Current CV/Resume and letter of recommendation from the major professor.

**Lola Lee Jackson Animal Welfare Foundation Fund Travel Award**

PURPOSE: To perpetuate the memory of Lola Lee Jackson and to support expenses for graduate students pursuing research in animal nutrition and/or feed science or other disciplines within the department of Grain Science & Industry.

ELIGIBILITY: Travel awards in the amount of \$250 - \$500 each are available to M.S. or Ph.D. students in the department of Grain Science & Industry. The purpose would be to attend a professional society meeting and/or scientific conference for making an oral (preferably) or poster presentation. Four or more such awards may be made each year. All GSI graduate students planning to present their research in a meeting/ conference are encouraged to apply, irrespective of area of research. Graduate students pursuing research in animal nutrition and/or feed science will be given preference for two of these awards.

SUBMIT: Current CV/Resume, a completed application form, abstract of presentation, and a recommendation letter from student's major advisor. (See form on next page).

# GRADUATE COURSES

## FALL

|                  |  |
|------------------|--|
| <b>GRSC602</b>   | Cereal Science                                     |
| <b>GRSC620*</b>  | Extrusion Processing in the Food & Feed Industries |
| <b>GRSC635</b>   | Baking Science I                                   |
| <b>GRSC636</b>   | Baking Science I Lab                               |
| <b>GRSC655</b>   | Cereal Food Plant Design & Construction            |
| <b>GRSC656</b>   | Pneumatic Conveying of Dry Solids                  |
| <b>GRSC661</b>   | Quality Feed Ingredients                           |
| <b>GRSC670</b>   | Bakery Layout                                      |
| <b>GRSC680</b>   | Milling Science II                                 |
| <b>GRSC681</b>   | Milling Science II Lab                             |
| <b>GRSC684</b>   | Milling Process Technology Management              |
| <b>GRSC690</b>   | Feed Technology II                                 |
| <b>GRSC691</b>   | Faculty-Led Study Abroad                           |
| <b>GRSC740*</b>  | Biomaterial Processing                             |
| <b>GRSC790</b>   | Problems in Grain Science - MS                     |
| <b>GRSC815**</b> | Fundamentals of Processing Grain for Food          |
| <b>GRSC820**</b> | Advanced Extrusion Processing                      |
| <b>GRSC825</b>   | Novel Uses of Biopolymers                          |
| <b>GRSC899</b>   | MS Research  |
| <b>GRSC900</b>   | Graduate Seminar in Grain Science                  |
| <b>GRSC905*</b>  | Enzyme and Bioprocessing Applications              |
| <b>GRSC910</b>   | Topics in Grain Science - PhD                      |
| <b>GRSC915**</b> | Advanced Cereal Chemistry                          |
| <b>GRSC999</b>   | PhD Research                                       |

## SPRING

|                  |   |
|------------------|---|
| <b>GRSC601</b>   | Practicum in Bakery Technology                                  |
| <b>GRSC610</b>   | Electricity and its Control for the Grain Processing Industries |
| <b>GRSC625</b>   | Flour & Dough Testing   |
| <b>GRSC630</b>   | Management Applications in the Grain Processing Industries      |
| <b>GRSC637</b>   | Baking Science II   |
| <b>GRSC638</b>   | Baking Science II Lab   |
| <b>GRSC640</b>   | Advanced Flow Sheets  |
| <b>GRSC651</b>   | Food & Feed Product Protection                                  |
| <b>GRSC670</b>   | Bakery Layout   |
| <b>GRSC691</b>   | Faculty-Led Study Abroad  |
| <b>GRSC712</b>   | Vibrational Spectroscopic Analysis & Chemometrics               |
| <b>GRSC713</b>   | Contemporary Chromatographic Analysis of Food                   |
| <b>GRSC745</b>   | Fundamentals of Bioprocessing                                   |
| <b>GRSC780*</b>  | Particle Technology for Solids Handling and Processing          |
| <b>GRSC790</b>   | Problems in Grain Science - MS                                  |
| <b>GRSC830*</b>  | Physical Properties of Cereal Polymers                          |
| <b>GRSC840**</b> | Advanced Grain Processing Technology                            |
| <b>GRSC899</b>   | MS Research   |
| <b>GRSC901*</b>  | Starch Chemistry & Technology                                   |
| <b>GRSC902**</b> | Carbohydrates in Food   |
| <b>GRSC910</b>   | Topics in Grain Science - PhD                                   |
| <b>GRSC915</b>   | Advanced Cereal Chemistry                                       |
| <b>GRSC920**</b> | Professional Development in Grain Science                       |
| <b>GRSC999</b>   | PhD Research  |

\*Offered in EVEN years only

\*\*Offered in ODD years only

**Department of Grain Science & Industry  
Graduate Student Travel Award Application**

**Applicant's Name** \_\_\_\_\_  
*Last First Middle Initial*

**E-mail** \_\_\_\_\_

**Degree Information:**

MS  PhD  
PhD Prelims Completed:  Yes  No

Start Date (month/year): \_\_\_\_\_

Target Completion Date (month/year): \_\_\_\_\_

**Approval of Major Professor:**

Print Name \_\_\_\_\_

Sign/Date \_\_\_\_\_

**Meeting Information (what, when, where):**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Are you presenting a paper?**

Yes  No  
 Technical Session  Poster Session

Session Title: \_\_\_\_\_

**Are you receiving a travel award for this same meeting from another source?**

Yes  No

Other Source: \_\_\_\_\_

**Have you previously received a departmental travel award?**

Yes  No

If yes, list all: \_\_\_\_\_

**Please drop off the Application Form and a copy of your submitted Abstract to Susan Kelly, 101  
BIVAP**

# Independent Study Form

Date: \_\_\_\_\_

GRSC 590  (for undergraduate students)

GRSC 790  (for MS students)

GRSC 910  (for PhD students)

Student name: \_\_\_\_\_ Instructor name: \_\_\_\_\_

Year: \_\_\_\_\_ Semester: *Spring*  *Summer*  *Fall*

Proposed course (project) title: \_\_\_\_\_

Credit hours:

Expected student learning outcomes:

- 1.
- 2.
- 3.
- 4.
- 5.

Summary of accomplishments (attach separately to this form)

Final grade:



## Department of Grain Science and Industry

### End of Semester Evaluation of Graduate Students

Student Name: \_\_\_\_\_  
PhD

Degree: MS

Semester & Year Enrolled: \_\_\_\_\_

Semester & Year Evaluated: \_\_\_\_\_

#### 1. EXPECTATIONS SET OUT AT THE START OF THE SEMESTER

- 1.
- 2.
- 3.
- 4.

#### 2. PROGRESS (RESEARCH & OTHERWISE) BY THE END OF THE SEMESTER\*\*

ACCEPTABLE \_\_\_\_\_

UNACCEPTABLE \_\_\_\_\_

#### 3. IF **UNACCEPTABLE** EXPLAIN THE REASON FOR THE RATING (attach supporting documentation as appropriate)

\*\* Two consecutive semesters of UNACCEPTABLE ratings may constitute grounds for loss of financial support.

\_\_\_\_\_  
Advisor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Student

\_\_\_\_\_  
Date

## Master's Graduate Student Learning Outcomes Assessment

(to be completed by SUPERVISORY COMMITTEE MEMBERS immediately following the examination)

Graduate Student: \_\_\_\_\_

Examination Outcome (circle one):    **PASS**                      **FAIL**                      **OTHER** \_\_\_\_\_

Faculty Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### M.S. ORAL EXAMINATION ASSESSMENT

Based on their performance on this examination, rate this student's capabilities in the following areas:

|  | highly<br>capable | capable | average | weak | un-<br>acceptable |
|--|-------------------|---------|---------|------|-------------------|
| Ability to synthesize and critically evaluate information pertinent to the Grain Science discipline.                       | 5                 | 4       | 3       | 2    | 1                 |
| Demonstration of advanced knowledge in one or more areas of specialization with the Grain Science discipline.              | 5                 | 4       | 3       | 2    | 1                 |
| Use of sound research methodology and an ability to apply research techniques.   | 5                 | 4       | 3       | 2    | 1                 |
| Ability to plan and conduct scholarly activities in one or more areas of specialization with the Grain Science discipline. | 5                 | 4       | 3       | 2    | 1                 |

### M.S. THESIS/ASSESSMENT

Based on your evaluation of their written thesis, rate this student's capabilities in the following areas:

|  | highly<br>capable | capable | average | weak | un-<br>acceptable |
|--|-------------------|---------|---------|------|-------------------|
| Ability to synthesize and critically evaluate information pertinent to the Grain Science discipline.                       | 5                 | 4       | 3       | 2    | 1                 |
| Demonstration of advanced knowledge in one or more areas of specialization within the Grain Science discipline.            | 5                 | 4       | 3       | 2    | 1                 |
| Use of sound research methodology and an ability to apply research techniques.   | 5                 | 4       | 3       | 2    | 1                 |
| Ability to plan and conduct scholarly activities in one or more areas of specialization with the Grain Science discipline. | 5                 | 4       | 3       | 2    | 1                 |

### GRADES ASSESSMENT (to be completed by MAJOR PROFESSOR ONLY)

Based on your evaluation of their grades in graduate-level courses, rate this student's capabilities in the follow area:

|   | highly<br>capable | capable | average | weak | un-<br>acceptable |
|---|-------------------|---------|---------|------|-------------------|
| Ability to synthesize and critically evaluate information pertinent to the Grain Science discipline.          | 5                 | 4       | 3       | 2    | 1                 |
| Demonstration of advanced knowledge in one or more areas of specialization with the Grain Science discipline. | 5                 | 4       | 3       | 2    | 1                 |

**PLEASE PLACE ADDITIONAL COMMENTS ON THE BACK OF THIS SHEET.**

## Ph.D. Graduate Student Learning Outcomes Assessment

(to be completed by SUPERVISORY COMMITTEE MEMBERS immediately following the examination)

Graduate Student: \_\_\_\_\_

Examination type (circle one): **Final Oral Exam**

**Ph.D. Preliminary Exam**

Examination Outcome (circle one): **PASS**      **FAIL**      **OTHER** \_\_\_\_\_

Faculty Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### ORAL EXAMINATION ASSESSMENT

Based on their performance on this examination, rate this student's capabilities in the following areas:

|  | highly<br>capable | capable | average | weak | un-<br>acceptable |
|--|-------------------|---------|---------|------|-------------------|
| <i>Ability to synthesize and critically evaluate information pertinent to the Grain Science discipline.</i>  | 5                 | 4       | 3       | 2    | 1                 |
| <i>Demonstration of advanced knowledge AND expertise in one or more areas of specialization within the Grain Science discipline.</i>   | 5                 | 4       | 3       | 2    | 1                 |
| <i>Use of sound research methodology and an ability to apply research techniques.</i>  | 5                 | 4       | 3       | 2    | 1                 |
| <i>Ability to plan and conduct scholarly activities that make original contributions to the knowledge base in one or more areas of specialization with the Grain Science discipline.</i> | 5                 | 4       | 3       | 2    | 1                 |

### THESIS/ASSESSMENT

Based on your evaluation of their written thesis, rate this student's capabilities in the following areas:

|  | highly<br>capable | capable | average | weak | un-<br>acceptable |
|--|-------------------|---------|---------|------|-------------------|
| <i>Ability to synthesize and critically evaluate information pertinent to the Grain Science discipline.</i>                          | 5                 | 4       | 3       | 2    | 1                 |
| <i>Demonstration of advanced knowledge AND expertise in one or more areas of specialization within the Grain Science discipline.</i> | 5                 | 4       | 3       | 2    | 1                 |
| <i>Use of sound research methodology and an ability to apply research techniques.</i>  | 5                 | 4       | 3       | 2    | 1                 |
| <i>Ability to plan and conduct scholarly activities in one or more areas of specialization with the Grain Science discipline.</i>    | 5                 | 4       | 3       | 2    | 1                 |

### GRADES ASSESSMENT (to be completed by MAJOR PROFESSOR ONLY)

Based on your evaluation of their grades in graduate-level courses, rate this student's capabilities in the follow area:

|  | highly<br>capable | capable | average | weak | un-<br>acceptable |
|--|-------------------|---------|---------|------|-------------------|
| <i>Ability to synthesize and critically evaluate information pertinent to the Grain Science discipline.</i>                        | 5                 | 4       | 3       | 2    | 1                 |
| <i>Demonstration of advanced knowledge AND expertise in one or more areas of specialization with the Grain Science discipline.</i> | 5                 | 4       | 3       | 2    | 1                 |

**PLEASE PLACE ADDITIONAL COMMENTS ON THE BACK OF THIS SHEET.**