

UNIVERSITY OF TENNESSEE
DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

**GRADUATE
HANDBOOK**

M.S. and Ph.D. in Materials Science and Engineering

M.S. and Ph.D. in Polymer Engineering

Effective August, 2008

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1. Introduction

Graduate programs are offered leading to the degrees of Masters of Science and Doctor of Philosophy in Materials Science and Engineering or Polymer Engineering. Both the Materials Science and Engineering and Polymer Engineering programs are flexible and interdisciplinary in nature. Students may be admitted from a wide range of disciplines; these include physics, chemistry, chemical engineering, mechanical engineering, electrical engineering, materials engineering, and engineering science programs.

Areas of concentration within the Materials Science and Engineering degree program include materials science, metallurgy, polymers, and nano materials. -Specializations include, but are not limited to: ceramics; composites; electronic materials; physical metallurgy; materials processing; welding metallurgy and materials joining; corrosion science and engineering; biomedical materials; and mechanical and physical behaviors of materials.

Areas of concentration within the Polymer Engineering degree program are polymer processing and polymer science. Speciality areas include rheology and polymer processing; polymer morphology; mechanical, physical and chemical behavior of polymers and composite materials.

2. Arrival and Selection of Advisor

All graduate students are admitted to programs of study in either Materials Science and Engineering or Polymer Engineering. On arrival at The University of Tennessee a new student should report to one of the Directors of Graduate Studies, there being one for Materials Science and Engineering and one for Polymer Engineering. The Director of Graduate Studies will review the student's background experiences and advise the student on a program of coursework appropriate to the first year of study. A permanent advisor should be chosen before the end of the first semester who will direct the thesis or dissertation, the Director of Graduate Studies serving as the interim advisor.

Students are advised to arrange an appointment with each professor active in the chosen program in order to learn about the research projects available. The student should choose

carefully, discussing subjects as often as desired with each potential advisor. When an advisor and a research project have been chosen, the student should inform the Director of Graduate Studies of the decision. The Director will then confirm that the advisor is willing and a formal transfer will occur. At this point, a copy of the student's file will be provided to the advisor, who will then assume all advising responsibilities.

A list of all potential advisors is provided in Section 8. For M.S. programs any faculty member may be chosen. For Ph.D. programs only faculty approved by the Graduate School for directing of doctoral students are automatically acceptable; however, other faculty may apply for permission to the Dean of the Graduate School to direct individual students.

3. Financial Support Limits

Graduate school rules permit students to receive financial support for a maximum period of 3 years in the case of a M.S., 5 years in the case of a Ph.D. and 8 years total for both M.S. and Ph.D. at this institution.

Students who receive financial support are expected to be in residence throughout the calendar year pursuing full time research and study. Typical annual vacation time is two weeks plus University holidays.

4. Master's Programs with Thesis

General Information

The Graduate School requires that each student have an advisor from the main department and that the student and advisor together select a committee. The committee must consist of the advisor and at least two faculty members at the rank of assistant professor or above. The department requires that the advisor be chosen prior to the end of the first semester of study and that the committee be appointed prior to the end of the second semester of study.

The responsibility of the committee is to assist the student in planning a course of study and carrying out research, and to assure fulfillment of the degree requirements. If the student has a minor, one member of the committee must be from the minor department.

Prior to the end of the third semester of study, the student is required to submit a written M.S. research proposal (typically 5-10 pages excluding the list of references) to the committee. The purpose of the proposal is to demonstrate that the student has identified a realistic program of research. In the event of an unsatisfactory proposal, the student is permitted to resubmit one, but within two months of the date of rejection.

Application for candidacy must be made as soon as possible after the student has completed any required prerequisite courses and nine hours of graduate coursework with a 3.0 average or higher in all graduate work. Admission to candidacy reflects agreement among the student, graduate committee and The Graduate School that the student has demonstrated ability to do acceptable graduate work and that normal progress has been made towards a degree.

The student must submit the Admission to Candidacy form, signed by the committee and listing all courses to be used for the degree, to the Office of Graduate Admissions and Records no later than commencement day of the semester preceding that of graduation.

Each graduate student will be evaluated by their committee prior to the end of the second semester after entry into the graduate program. The purpose of the evaluation is to assess the potential for success of the graduate student in the completion of the program of study and will include the following:

1. Academic progress-satisfactory completion of course work leading to the degree and suitability of courses taken and those to be included in the remaining tenure leading to the completion of the degree program.
2. Thesis progress.

3. Compliance with the graduate student handbook.

The thesis committee will place in the graduate student's file the results of the evaluation and recommendations for continuation in the program and/or recommendations for the course work or research plan. The director of graduate studies will be responsible for the scheduling of the evaluation review and submitting the results of the review to the department head for action and/or inclusion in the student's file.

Thesis Registration and Thesis

A student must be registered for course MSE 500 each semester during work on the thesis, including a minimum of 3 hours the semester in which the thesis is accepted by The Graduate School. Six hours of course 500 are required for the thesis option. After receiving the Master's degree, a student is no longer permitted to register for Thesis 500.

The thesis represents the culmination of an original research project completed by the student. It must be prepared according to the UTK Guide to the Preparation of Theses and Dissertations. Two copies of the thesis must be approved and accepted by The Graduate School on or before the deadline specified each semester in the Graduate School News. Each copy must include an approval sheet, signed by the members of the Master's committee, certifying that they have examined the final copy of the thesis and judged it to be satisfactory. Two additional copies, one bound and one unbound, are required by the department for use as future reference documents.

A candidate presenting a thesis or review must pass a final oral (or oral and written) examination on all work offered for the degree. The examination, which is concerned with coursework and the thesis or review, measures the candidate's ability to integrate material in the major and related fields, including the work presented in the thesis or review. This examination, scheduled through your major advisor, your committee and your academic department (please come by the office to schedule a conference room as soon as your advisor and committee agrees on a date), must be held at least three weeks before the final date for approval and acceptance of thesis by The Graduate School. Final examinations not properly scheduled must be repeated.

The final draft of the thesis must be distributed to all committee members at least two weeks prior to the date of the final examination. In case of failure, the candidate may not apply for re-examination until the following semester. The result of the second examination is final.

Students using University facilities and faculty time must be registered for course 502 if not registered for other courses.

Candidates have six calendar years from the time of enrollment in The Graduate School to complete the degree. Students who change degree programs during this six-year period may be granted an extension after review and approval by The Graduate School. In any event, courses used toward a Master's degree must have been taken within six calendar years of graduation.

Coursework Requirements

Thesis Option

A total of 30 semester hours is required for a M.S. degree in either Materials Science and Engineering.

Additional requirements include:

1. A major consisting of 12 semester hours of graduate courses in Materials Science and Engineering and 15 semester hours of graduate courses in Polymer Engineering. The Materials Science and Engineering major must include 511, 512, 515, and 516 for the metallurgy concentration; 511, 512 540, and 541 for the polymers concentration; 511, and 512 and two courses approved by the student's faculty committee for the materials science concentration, 511, 512 and two courses from the approved nanomaterials specialization list for the nanomaterials concentration; and 511, 512 and two courses from the approved nanomaterials specialization list for the nanomaterials concentration. The Polymer Engineering major must include 540, 541, 543, 546, 549, and 550 for the polymer processing and polymer science concentrations, exceptions are given if similar material has been covered in prior coursework.
2. For Materials Science additional courses up to 12 hours total in related areas. For Polymer Engineering additional 9 hours total in related areas.
3. Master's thesis, 500, totaling 6 to 12 hours.
4. Satisfactory performance on a comprehensive oral examination administered by the faculty committee.

All resident students are required to participate in the graduate seminar in materials science and engineering or polymer engineering, as appropriate, during each semester in which it is offered. Three hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements.

5. Master's Programs Without Thesis

Any candidate may apply for a non-thesis option. Upon acceptance, a supervisory committee of three will be appointed. At least two members of the committee will be from the faculty in the major area, either Materials Science and Engineering or Polymer Engineering. The requirements for completion of the non-thesis option are as follows:

1. Completion of a total of 30 hours of graduate coursework. At least 18 of those hours must be in the department, and up to 12 may be in related areas. Three hours of MSE 503 or 504, Seminar, graded Satisfactory/No Credit, may be counted toward degree requirements. The Materials Science and Engineering major and the Polymer Engineering major must include the same courses required for the thesis option. The candidate's degree program must be approved by the faculty committee.
2. Satisfactory completion of MSE 580 (Critical Review) as a culminating experience. This course shall include a comprehensive examination administered by the faculty committee.

6. Doctoral Programs

General Information and Course Requirements

After one year in residence and with the approval of the faculty, a student may proceed directly to the doctoral program without completion of a master's degree.

Departmental requirements for completion of the doctoral degree are:

1. a. For students proceeding directly to the PhD from the baccalaureate degree, a minimum of 72 graduate credit hours is required. These hours must include 42 graduate course credit hours with at least six hours of 600-level courses and 30 hours of dissertation. Six hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements. At least 24 credit hours must be courses taught in the department. The materials science and engineering major and the polymer engineering major must include the courses required for the master's program. For students in the nanomaterials concentration, at least 12 hours of coursework must be from the approved nanomaterials specialization list.
- b. For students having a thesis-based master's degree from UT in materials science and engineering or polymer engineering, or a master's degree from another university in materials science and engineering, polymer engineering, or metallurgical engineering, a minimum of 48 graduate credit hours is required. These hours must include 18 graduate course credit hours with at least six hours of 600-level courses and 30 hours of dissertation. Three hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements. At least 12 credit hours must be courses in the department. For students in the nanomaterials concentration, at least 12 hours of coursework must be from the approved nanomaterials specialization list.
- c. For students having a non-thesis master's degree from UT in materials science and engineering or polymer engineering, a minimum of 48 graduate credit hours is required. These must include 15 graduate course credit hours with at least six hours of 600-level courses and 33 hours of dissertation. Three hours of Materials Science and Engineering 503 or 504 may be counted toward degree requirements. At least 12 credit hours must be courses in the department. For students in the nanomaterials concentration at least 12 hours of coursework must be from the approved nanomaterials specialization list.
- d. For students having a master's degree in a related discipline, a minimum of 72 graduate credit hours is required. These must include 42 graduate course credit hours with at least six hours of 600-level courses, and 30 hours of dissertation. The courses must also include those required for the Master's program. Three hours of Materials Science and Engineering 503 or

504 may be counted toward the degree requirements. Upon approval of his/her major advisor, the student may petition the department head for acceptance of up to 30 hours of coursework and thesis credits, based on the master's degree, toward the 72 credit-hour requirement. At least 30 of the total 42 course credit hours approved for the degree must be in the materials science and engineering area.

2. Satisfactory performance on the applicable comprehensive examination.
3. Active participation in graduate seminars conducted by the department.

Doctoral Committee

The student and the major professor, who has been chosen during the student's first semester of study, identify a doctoral committee composed of at least four faculty members, holding the rank of Assistant Professor or above, three of whom, including the chair, must be approved by The Graduate Council to direct doctoral research. At least one member must be from a department other than that of the student's major field. This committee is nominated by the department head or college dean and approved by The Graduate School.

The committee should be formed during the student's first year of doctoral study. Subject to Graduate Council policies and individual program requirements, the committee must approve all coursework applied toward the degree, certify the student's mastery of the major field and any cognate fields, direct the research, and recommend the dissertation for approval and acceptance by The Graduate School.

Dissertation Prerequisite

The student must register continuously for MSE 600 (minimum of 3 hours) from the time the doctoral research proposal is approved, admission to candidacy is accepted, or registration for MSE 600 is begun, whichever comes first, including summer semesters and the semester in which the dissertation is approved and accepted by The Graduate School. A minimum total of 24 hours of MSE 600 is required before the dissertation will be accepted. A student who will not be using faculty services and/or university facilities for a period of time may request leaves of absence from dissertation research up to a maximum of six semesters. The request will be considered by The Graduate School upon written recommendation of the department head.

Evaluation of Student Programs

Each graduate student will be evaluated by their committee prior to the end of the second semester after entry into the graduate program. The purpose of the evaluation is to assess the potential for success of the graduate student in the completion of the program of study and will include the following:

1. Academic progress and satisfactory completion of course work leading to the degree, and suitability of courses taken and those to be included in the remaining tenure leading to the completion of the degree program.
2. Dissertation progress.
3. Compliance with the graduate student handbook.

The dissertation committee will place in the graduate student's file the results of the evaluation and recommendations for continuation in the program and/or recommendations for the course work or research plan. The director of graduate studies will be responsible for the scheduling of the evaluation review and submitting the results of the review to the department head for action and/or inclusion in the student's file.

Comprehensive Examination

The Comprehensive Examination consists of four parts: the Preliminary Examination and the Dissertation Proposal. The Preliminary Examination is usually offered in January for Materials Science and Engineering students, but is offered on request by the student for Polymer Engineering students. All students in Materials Science and Engineering are required to take the Preliminary Examination no more than one academic year following admission to the Ph.D. program. All students in Polymer Engineering are required to take the preliminary examination no more than two academic years following admission to the Ph.D. program. Different examinations are given in each of the two Ph.D. programs, as described below. The Preliminary Examinations are conducted by faculty in the chosen Ph.D. program.

Preliminary Examination in Materials Science and Engineering

The Materials Science and Engineering Preliminary Examination will be given in four required parts and one optional part. Each part is graded independently. No student will be allowed to take the Preliminary Examination more than twice, viz., all four required parts must be passed by the second attempt. The four required parts of the examination must be taken during the same examination period. The exams will be prepared by the Materials Science and Engineering faculty, will be “Closed Book,” and no notes or other aids, with the exception of calculators, will be allowed. The four required parts consist of: 1) Structure and X-ray diffraction, 2) Kinetics and Thermodynamics, 3) Electronic Properties and 4) Mechanical Properties. Parts 1 and 2 will involve questions related to topics covered in MSE 511, Fundamentals of Materials Science and Engineering I. Parts 3 and 4 will involve questions related to topics covered in MSE 512, Fundamentals of Materials Science and Engineering II.

Part 5 of the Preliminary Examination is optional and will be prepared by the student’s Doctoral Committee. The decision on whether the student should or should not take part 5 rests on the student’s major advisor. This section will be in the student’s specialty, and will be administered as a “Take Home” examination with an allowed completion time of two weeks. No assistance, from any source, except already existing documentation in the open “literature,” is permitted.

The part 5 examination is intended to test the independent thought processes of the student and assess his/her ability to do independent research. The examination, which will be prepared by the student’s Doctoral Committee, may consist of one or more of the following: a critical review of specific literature, problem solving, application of specific scientific principles to the dissertation topic, preparation of a proposal for research, or other creative assignments as may be devised by the student’s Doctoral Committee.

The student will prepare a written response to the assignment (the response document will be typewritten and formally composed) and will submit the document to his/her Doctoral Committee within two weeks. The Doctoral Committee will study the response and (within 1 semester of submission) orally examine the student on the response to the assignment constituting the third section of the Preliminary Examination. The Doctoral Committee will grade the student on a “pass-fail” basis and report the results to the Director of Graduate Affairs within 1 week of the oral examination.

The Faculty will then review the results of all four or five parts of the Preliminary Examination and provide the student with their assessment.

Any student who fails one part of the Preliminary Examination may either retake that part by oral examination within one month, or retake that part by written examination the next time the Preliminary Examination is offered. No student will be allowed to take the Preliminary Examination more than twice.

Preliminary Examination in Polymer Engineering

The Polymer Engineering Preliminary Examination will be given in four sections. There will be a three-person committee for Sections I-III for each student; the student's major advisor will normally convene that committee. A second three-person committee will be charged with formulating Section IV, a research proposal question. Both committees will normally be composed of Polymer Engineering faculty.

Written questions for Sections I-III (normally one question for each section) may be in several different formats, including, but not limited to:

- (a). a set of questions dealing with a specific subject area
- (b). a critique of a recent important paper
- (c). processing and interpretation of experimental data
- (d). development of a series of experiments using an unfamiliar technique
- (e). a mathematical manipulation of theory

The second three-person committee will formulate Section IV of the Preliminary Examination, which will consist of a proposal-format question on a subject different from the subject of the student's research. The student will have two weeks to prepare and submit a 10 page written proposal. The prelims chair will schedule an oral examination to be one week after the proposal is submitted by the student. The oral presentation of the proposed research will be examined by the committee who wrote the questions, with the major advisor present as an observer. The student may bring to the oral examination any reference materials she/he deems appropriate.

The set of four questions for Sections I-IV will be held by the prelims chair, who will then give them one section at a time to the student when requested to do so (see later). The

student will be expected to pass all four sections of the Preliminary Examination. Each of the Sections I-III will be answered by the student within a period of no more than two weeks using a completely open book format. The student is not permitted to consult with anyone, inside or outside the university, during the answering of the question. Questions may be asked of the prelims chair only for clarification purposes. Sections I-III must be answered within a period of 4 months from the time the first question is given. Students may take the Preliminary Examination only once, but may be allowed to retake one of Sections I-III, if the performance is otherwise satisfactory. If the student's performance in Section IV is unsatisfactory, the student may be permitted to retake this section once.

Dissertation Proposal

Within one year of passing the first part of the Comprehensive Examination, i.e., the Preliminary Examination, each candidate *must* submit a proposal describing the proposed research. This proposal and the subsequent oral examination comprise the second part of the Comprehensive Examination. The proposal should contain sufficient detail, by way of literature search and preliminary experimental and/or theoretical development, to allow the examining committee to assess the likelihood of success. The oral examination of the proposal material will be scheduled within one month of submission of the proposal. The examination will be conducted by the student's faculty Ph.D. committee.

The Graduate School rules state that all requirements for the Ph.D. degree must be completed within eight years of the time of a student's first enrollment in a doctoral degree program.

Admission to Candidacy

Admission to candidacy reflects agreement among the student, graduate committee, and The Graduate School that the student has demonstrated the ability to do acceptable graduate work and that normal progress has been made toward a degree. This action usually connotes that all prerequisites to admission have been completed and a program of study has been approved.

A student may be admitted to candidacy for the doctoral degree after passing the comprehensive examination, and maintaining at least a B average in all graduate coursework.

Admission to candidacy must be applied for and approved at least one full semester prior to the date the degree is to be conferred. Each student is responsible for filing the admission to candidacy form, listing all courses to be used for the degree, signed by the doctoral committee and approved by The Graduate School.

Dissertation

The dissertation represents the culmination of an original major research project completed by the student. The organization, method of presentation, and subject matter of the dissertation are important in conveying to others the results of such research.

A student should be registered for the number of dissertation hours representing the fraction of effort devoted to this phase of the candidate's program. Thus, a student working full-time on the dissertation should register for 12 hours of 600 per semester.

Two copies of the dissertation (prepared according to the regulations in the UTK Guide to the Preparation of Theses and Dissertations) must be submitted to and accepted by The Graduate School. Each copy must include an approval sheet, signed by all members of the doctoral committee, which certifies to The Graduate School that they have examined the final copy and found that its form and content demonstrate scholarly excellence. Doctoral forms and a thesis card are also submitted at this time. Two additional copies of the dissertation, one bound and one unbound, are required by the department for use as future reference documents.

Defense of Dissertation Examination

A doctoral candidate must pass an oral examination on the dissertation. The defense of dissertation will be administered by the members of the doctoral committee after completion of the dissertation and all course requirements. This examination must be passed at least three weeks before the date of acceptance and approval of the dissertation by The Graduate School. The examination must be scheduled through the Graduate Admissions and Records Office. Final examinations not properly scheduled must be repeated. The dissertation, in the form approved by the major professor, must be distributed to the committee at least two weeks before the examination. The examination is announced publicly and is open to all faculty members.

7a. Summary of Procedures for Master's Degree

Procedures	Under Direction of	Date
Admission as a Potential Degree Candidate and Major Department	Office of Graduate Admissions and Records	Prior to Completing 15 Hours of Graduate Courses
Choice of Advisor	Advisor and Student	Prior to End of First Semester
Formation of Master's Committee	Advisor/Major Professor	Prior to End of Second Semester
Student Evaluation	Masters Committee/Advisor	Prior to End of Second Semester
Thesis Proposal Graduation	Masters Committee and at Least One Semester	Prior to End of Third Semester Before
Transfer to Ph.D. Special Examination	Faculty Committee	Prior to End of Fourth Semester
Submission of Application for Admission to Candidacy	Master's Committee	At Least One Semester Prior to Graduation*
Approval of Admission to Candidacy	The Graduate School	Prior to Graduation

Graduation Requirements for Thesis/Non-Thesis Options

Placement of Name on Graduation List	Student	Indicate on Registration Materials
Application for Diploma	Office of Graduate Admissions and Records	Deadline Available at Registration*
Payment of Graduation Fee	Bursar's Office	Deadline Available at Registration*
Submission of Thesis/ Review to Master's Committee	Student	At Least Two Weeks Prior to Final Examination
Scheduling of Final Examination	Student and Committee	Not Later Than Two Weeks Prior to Final Examination*
Final Examination	Master's Committee	Not Later Than Three Weeks Prior to Thesis Deadline*
Approval and Acceptance Final Copy of Thesis and Thesis Card	Master's Committee and The Graduate School	After Final Examination and No of Later Than Two Weeks Prior to Commencement*
Removal of Incomplete(s)	Course Instructor to Commencement*	Not Later Than One Week Prior

*Deadlines are Printed in the Graduate School News Each Semester

7b. Summary of Procedures for Doctoral Degree

Procedures	Under Direction of	Date
Admission as a Potential Degree Candidate	Office of Graduate Admissions and Records and Major Department	Prior to Completing 15 Hours of Graduate Courses
Choice of Advisor	Advisor and Student	Prior to End of First Semester
Appointment of Doctoral Committee	The Graduate School on Recommendation of Department Head	Prior to End of Second Semester
Student Evaluation	Doctoral Committee Advisor	Prior to End of Second Semester
Comprehensive Exam (Written)	Program Faculty	Prior to Beginning of Sixth Semester
Comprehensive Exam (Proposal)	Doctoral Committee	Within 1 Year of Passing the Comprehensive Exam.
Submission and Approval of Application for Admission to Candidacy	Doctoral Committee and The Graduate School	At Least One Semester Prior to Graduation

Graduation Requirements

Placement of Name on Graduation List	Student	Indicate on Registration Materials
Application for Diploma	Office of Graduate Admissions and Records	Deadline Available at Registration*
Payment of Graduation Fee	Bursar's Office	Deadline Available at Registration*
Submission of Dissertation to Doctoral Committee	Student	At Least Two Weeks Prior to Defense of Dissertation Examination*
Scheduling of Defense of Dissertation Examination	Student and Office of Graduate Admissions and Records	Not Later Than One Week Prior to Defense of Dissertation Examination*
Defense of Dissertation Examination	Doctoral Committee	Not Later Than Three Weeks Prior to Dissertation Deadline*
Approval and Acceptance of Final Copy Dissertation, Doctoral Forms, and Dissertation Card	Doctoral Committee and The Graduate School	After Defense of Dissertation Examination and Not Later Than Two Weeks Prior to Commencement*
Removal of Incomplete(s)	Course Instructor	Not Later Than One Week Prior to Commencement*

*Deadlines are Printed in the Graduate School News Each Semester.

8. Faculty and Their Research Interests

(* indicates approval to direct doctoral dissertations by The Graduate School)

Materials Science and Engineering

- * **Roberto S. Benson**, Ph.D., Florida State: *Biopolymers, Polymer Degradation, Composites*
- * **Gajanan S. Bhat**, Ph.D., Georgia Institute of Technology: *Textile Science*
- * **Hahn Choo**, Ph.D., Illinois Institute of Technology: *Powder Metallurgy, Physical/Mechanical Metallurgy, Neutron Scattering*
- * **Narendra B. Dahotre**, Ph.D., Michigan State: *Ceramic Processing, Laser Materials Processing, Structure/Property Relationships*
- * **Gerd Duscher**, Ph.D., Sci., University of Stuttgart: *Interface Science, Analytic (Scanning) Transmission Electron Microscopy*
- * **Takeshi Egami**, UT/ORNL Distinguished Scientist, Ph.D., Pennsylvania: *Amorphous and Nanocrystalline Solids, Neutron and X-Ray Scattering, Electronic Oxides*
- * **Yanfei Gao**, Ph.D., Princeton, New Jersey,: *Computational Materials Science.*
- * **Easo P. George**, Ph.D., Pennsylvania: *Mechanical Behavior, Physical Metallurgy, Intermetallics, In-Situ Composites*
- * **Wei He**, Ph.D., University of Connecticut, Storrs, CT: *Novel Polymers for Tissue Engineering*
- * **Bin Hu**, Ph.D., Chinese Academy of Sciences: *Electronic and Optical Polymeric Materials and Devices*
- * **David C. Joy**, UT/ORNL Distinguished Scientist, Ph.D., Oxford (UK): *Electron Microscopy, Electron-Solid Interactions, Device Metrology*
- * **“Ramki” Ramakrishnan Kalyanaraman**, Ph.D. North Carolina State University: *Thin Films, Laser Processing, Electronic Properties, Nanocomposites*
- * **Veerle Keppens**, Ph.D., Katholieke Universiteit Leuven (Belgium): *Physical Acoustics, Synthesis and Characterization of Novel Materials*
- * **Kevin M. Kit**, Ph.D., Delaware: *Polymer Blends, Agricultural Materials*
- * **Peter K. Liaw**, Racheff Chair of Excellence, Ph.D., Northwestern: *Mechanical Behavior, Composite Materials, Life Prediction and Extension*
- * **C. T. Liu**, Ph.D., (Distinguished Professor) Materials Science and Engineering, Brown University 1967; *Physical metallurgy and mechanical behavior of metals, alloys, intermetallic compounds and bulk metallic glasses, and nanophase composites.*
- * **Carl D. Lundin**, Ph.D., Rensselaer: *Welding, Joining, Non-Equilibrium Metallurgy*
- * **Carl J. McHargue**, Director, Center for Materials Processing, Ph.D., Kentucky: *Physical Metallurgy, Ion Implantation in Ceramics, Nanoscience/Technology*
- * **Thomas T. Meek**, Ph.D., Ohio State: *Processing and Electronic Properties of Ceramics*
- * **Charles L. Melcher**, Director, Scintillation Materials Research Center, Ph.D. Washington University: *Crystal Growth and Characterization of Novel Scintillation Materials*

- * **James R. Morris**, Ph.D. Cornell University, August 1992: *Computational Materials Science*
- * **T. G. Nieh**, Ph. D., Stanford 1980; *Metallic Glasses, Nanostructured Materials, Composites, Lightweight Alloys, Intermetallics, Refractory Metals, Thin Films, Bioceramics, Superplasticity, High Temperature Mechanical Properties.*
- * **George M. Pharr**, ORNL Joint Faculty, Ph.D., Stanford: *Mechanical Behavior, Nanoindentation, Thin Films*
- * **Philip D. Rack**, Ph.D. Gainesville, Florida, 1977; *Electronic and Optoelectronic Materials, Thin Film Processing and Characterization, and Selective Nanoscopic Processing*
- * **Claudia J. Rawn**, Ph.D., Arizona: *Ceramics Processing, X-Ray Diffraction, Neutron Scattering*
- * **Michael L. Simpson**, Ph.D., Tennessee: *Electronic Materials, Nanostructured Materials, Nanofabrication, Biomaterials*
- * **Joseph E. Spruiell**, Ph.D., Tennessee: *Polymer Processing, Modeling, Structure Development, Fiber Science, Nonisothermal Crystallization, Structure/Property Relations*
- * **Larry C. Wadsworth**, Ph.D., North Carolina State: *Textile Science*
- * **Shanfeng Wang**, Ph.D., The University of Akron, Ohio: *Polymer, Biomaterials and Tissue Engineering*

Polymer Engineering

- * **Roberto S. Benson**, Ph.D., Florida State: *Biopolymers, Polymer Degradation, Composites*
- * **Gajanan S. Bhat**, Ph.D., Georgia Institute of Technology: *Textile Science*
- * **Wei He**, Ph.D., University of Connecticut: *Novel Polymers for Tissue Engineering*
- * **Bin Hu**, Ph.D., Chinese Academy of Sciences: *Electronic and Optical Polymeric Materials and Devices*
- * **David C. Joy**, UT/ORNL Distinguished Scientist, Ph.D., Oxford (UK): *Electron Microscopy, Electron-Solid Interactions, Device Metrology*
- * **Kevin M. Kit**, Ph.D., Delaware: *Polymer Blends, Agricultural Materials*
- * **Joseph E. Spruiell**, Ph.D., Tennessee: *Polymer Processing, Modeling, Structure Development, Fiber Science, Nonisothermal Crystallization, Structure/Property Relations*
- * **Larry C. Wadsworth**, Ph.D., North Carolina State: *Textile Science*
- * **Shanfeng Wang**, Ph.D., The University of Akron: *Polymer, Biomaterials and Tissue Engineering*

ADJUNCT FACULTY

Theodore M. Besmann, Associate Professor

Everett Bloom, Professor
Craig Blue, Assistant Professor
Lynn Boatner, Professor
Michael P. Brady, Associate Professor
Roy Broughton, Assistant Professor
Domenic A. Canonico, Professor
Billie J. Collier, Professor
Claus Daniel, Assistant Professor
Lars Aldon Erikson, Professor
Qiangyou Han, Professor
Joseph A. Horton, Jr., Professor
Cam Hubbard, Professor
Gene E. Ice, Professor
James, Klett, Assistant Professor
Ho-Nyung Lee, Associate Professor
David Mandrus, Professor
Jimmy W. Mays, Professor
Chaitanya Narula, Assistant Professor
Warren Oliver, Professor
Felix Paulauskas, Professor
Timothy R. Rials, Professor
Michael L. Santella, Professor
Piotr Szupryczynski, Assistant Professor
Terry N. Tiegs, Assistant Professor
Xun-Li Wang, Associate Professor
Thomas R. Watkins, Assistant Professor

RESEARCH FACULTY

Paul Becher, Professor
Wojtek Dmoski, Associate Professor
Jar-Shyong Lin, Professor
Konstantin Lokshin, Assistant Professor
Hong Wang, Assistant Professor
Sung Hun Wee, Assistant Professor
Yukinori Yamamoto, Assistant Professor

9. Appeals Procedures

Grievances against any policy or action by the University or its personnel may be presented according to the procedures specified in HILLTOPICS - A STUDENT HANDBOOK.

In addition, complaints or disputes involving the Department of Materials Science and Engineering or its personnel may be addressed within the department. When appropriate, the student should request a meeting with his/her advisor, or his/her committee. If a resolution of an issue cannot be achieved with either the advisor or the student's committee, or if the dispute involves them, then the student should request a meeting with the Department Head and any departmental personnel involved in the dispute. If a resolution satisfactory to the student cannot be achieved within the Department, then the student may request a meeting with the Dean of Engineering or may follow procedures described in HILLTOPICS.

APPENDICES

M.S. Tracking Form

Ph.D. Tracking Form

M.S. Tracking Form

Date First Registered

Last name

Materials Science and Engineering

M.S. Degree in

Engineering

Student:

LAST

FIRST

MIDDLE

Emp. #:

Advisor:

Other

Committee:

Members

Date appointed

Signature

Second Semester Review

Satisfactory/Unsatisfactory

Date Conducted

Research Proposal

Date submitted

Date accepted by committee

Admission to Candidacy

Date requested

Date approved by Graduate
School (attach documentation)

Degree by Thesis

Non-Thesis

Title of Thesis/Review Paper

Oral Examination

Date conducted

PASS or FAIL

Date of First Registration

Time Limit Deadline

(for graduation)

(for support)

Ph.D. Tracking Form

Date First Registered

Last name

Materials Science and Engineering

Ph.D. Degree in

Engineering

Student:

LAST

FIRST

MIDDLE

Emp. #:

Advisor:

*

Other

Committee:

*

Members

*

*

Date appointed

Signature

**

Department

M.S. Degree

(if none, attach
conditions of admission)

Institution

Subject

Date

Second Semester Review

Satisfactory/Unsatisfactory

Date Conducted

Comprehensive Examination

Written section

Date Taken

Results

Oral

Date Taken

Results

Proposal Defense

Date Taken

Results

Admission to Candidacy

Date requested

Date approved by Graduate
School (attach documentation)

Title of Dissertation

Oral Examination

Date conducted

PASS or FAIL

Date of First Registration

as a graduate student

as a doctoral student

Time Limit Deadline

(for graduation)

(for support)

*must be approved to direct Ph.D.s by the Graduate School

**must be from another department

HONOR STATEMENT
(From the 2008-2009 Catalogue)

Academic integrity is a responsibility of all members of the academic community. An honor statement is included on the application for admission and readmission. The applicant's signature acknowledges that adherence is confirmed. The honor statement declares *An essential feature of the University of Tennessee, Knoxville, is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the university, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.*

Plagiarism

Students shall not plagiarize. Plagiarism is using the intellectual property or product of someone else without giving proper credit. The undocumented use of someone else's words or ideas in any medium of communication (unless such information is recognized as common knowledge) is a serious offense subject to disciplinary action that may include failure in a course and/or dismissal from the university. Some examples of plagiarism are

- Using without proper documentation (quotation marks and a citation) written or spoken words, phrases, or sentences from any source.
- Summarizing without proper documentation (usually a citation) ideas from another source (unless such information is recognized as common knowledge).
- Borrowing facts, statistics, graphs, pictorial representations, or phrases without acknowledging the source (unless such information is recognized as common knowledge).
- Submitting work, either in whole or in part, created by a professional service and used without attribution (e.g., paper, speech, bibliography, or photograph). Extreme caution should be exercised by students involved in collaborative research to avoid questions of plagiarism. If in doubt, students should check with the major professor and the Dean of the Graduate School about the project. Plagiarism will be investigated when suspected and prosecuted if established.