BOONE PICKENS
SCHOOL OF GEOLOGY

Oklahoma State University

Graduate Student Rules and Regulations
Updated August 2016
Table of Contents

Expectations for Graduate Students 3
Procedure for Completion of Master’s Thesis 3
Procedure for Completion of Doctoral Dissertation 7
Procedure for Completion of Performance Assessment 13
Appendices
   I. Performance Assessment Form 14
   II. Authorization to Defend thesis/dissertation form 16
   III. Current Course Offerings for Graduate Credit 17
EXPECTATIONS FOR GRADUATE STUDENTS

1. All graduate students are expected to attend weekly School seminars and the thesis/dissertation defenses of other graduate students.

2. Graduate teaching assistants (TAs) are expected to work closely with faculty members in charge of the lecture components of the laboratory. They should be available at least 2 hours per section during their office hours to work with the students in their laboratory courses. TAs are also expected to attend the lecture portion of the class as deemed appropriate by the faculty member.

3. TAs must maintain a 3.33 GPA each semester to retain their assistantships. If a student’s GPA drops below this point, their assistantship will not be renewed for the following semester. A student can be reconsidered for a new teaching assistantship if their GPA in the previous semester is a 3.33 or higher, at the discretion of the Graduate Committee if positions are available.

4. Graduate research assistants (RAs) are expected to work closely with their research advisors who will set specific timetables for them to meet research goals and objectives of their funded projects.

5. Graduate students are expected to attend at least one national/international geosciences meeting and make a presentation during their tenure at Oklahoma State University.

6. Master’s students are encouraged and doctoral students are required to submit their research projects for publication in peer-reviewed journals.

7. Graduate students are expected to seek outside funding to help support their research projects. There are many external funding opportunities for graduate students provided by agencies such as Society of Exploration Geophysicists (SEG), Geological Society of America (GSA), American Association of Petroleum Geologists (AAPG), United States Geological Survey (USGS), and National Association of Black Geoscientists (NABGG).

8. In addition to the deadlines set forth herein, the Graduate College has its own deadlines for various forms and actions. It is the responsibility of the graduate student - not his or her advisor or committee members - to be aware of these deadlines. Information specific to the Graduate College may be found at: gradcollege.okstate.edu.

PROCEDURE FOR COMPLETION OF MASTER’S THESIS

1. The Graduate College requires all graduate students submit a Plan of Study prior to completing 17 credit hours of graduate coursework, which will typically mean the end of a student’s second semester, if they are enrolled full-time. The Plan of Study contains a list of courses to be completed as well as the members of the student’s thesis committee. Lists of Geology courses that currently (as of 2015-2016) may be taken for graduate credit are listed in Appendix IV. GEOL 5243 (Research Methods and Techniques in Geosciences) is a required course for all Master’s students and it is recommended to be taken during the first semester of enrollment in the degree program. Deadlines for submission of the Plan of Study to the Graduate College may be found at: gradcollege.okstate.edu.
2. In their first semester on campus, Master’s students should visit with the Geology faculty to learn who has interests and expertise that complements those of the student. The student should then select an advisor who is a member of the Graduate Faculty by the middle of the second semester of enrollment in graduate work. Next, the student and advisor decide which two other faculty members should be added to their committee. The student then explains his/her research problem to the other two faculty members and asks them if they are willing to serve on the committee. If they agree, the faculty member signs the student’s Plan of Study.

3. As part of the degree requirements, all MS students are required to: 1) provide the Boone Pickens School of Geology graduate faculty with proposals outlining their MS thesis and, 2) defend their thesis proposal in a public forum in the School. Students are strongly encouraged to satisfy these requirements during the second semester of their full time study in the BPSoG, but no later than the end of the third full semester in residence (not including summer sessions). A period of one week is required between the time of dissemination of the proposal and the time of scheduled defense. Failure to submit and successfully defend the MS proposal before the end of the third semester of full time enrollment will prevent the student from enrolling in the MS program in subsequent semesters until this degree requirement is met. The MS research proposal should include a clearly written outline of the scientific/technical questions, intellectual/technical merit of the proposed research, data requirements, expected results, and timeline for the completion of the project. It is expected that students develop their MS research proposal in close coordination with their research advisors. The outcome of the thesis proposal defense will be reported using the “Master Thesis Research Proposal Defense Results” form (Appendix I) with decisions that include unconditional pass, conditional pass or no pass. If a conditional pass decision is made, then the student research committee will specify the conditions.

4. Master’s students in the School of Geology must complete a thesis in order to satisfy the requirements for a master’s degree. Under exceptional circumstances, a “creative component” may be completed. Approval for such decisions is made by the entire faculty at a regular faculty meeting on an individual basis. Whereas the thesis template provided by the Graduate College may be used, in most cases, the preferred format for the written thesis is a manuscript that can be submitted to a national/international peer-reviewed journal. Additional data that does not fit within the manuscript must be included as appendix/appendices as needed.

5. When the thesis is written, the student will first submit a complete initial draft of his/her thesis to the thesis advisor. The advisor will return the draft with comments, in general no later than two weeks after submission. No parts of the thesis can be missing from this first draft. The student makes the corrections, and resubmits the draft to the advisor. The submission of the draft to the advisor can occur independently from the required submission to the Graduate College. With the advisor’s approval, the thesis is then submitted to the other committee members. The committee will provide a response to the student within two weeks.
6. Once the thesis has been approved as “defendable”, by all committee members, the committee and committee chair will sign the “Authorization to Defend Thesis” form (Appendix II), and submit it to the Graduate College office. The thesis defense may not be scheduled until the thesis has been approved as “defendable” by the committee and committee chair, and the completed “Authorization to Defend Thesis” form submitted to the BPSoG main office. When the thesis is considered “defendable”, the committee chair will also inform the Graduate Advisor and the Seminar Coordinator of his/her decision. The student will then work with the thesis committee members and the Seminar Coordinator to schedule a thesis defense, no earlier than two weeks after submitting the “Authorization to Defend Thesis” form.

7. When the thesis defense has been scheduled, the student will also give a copy of the thesis to the BPSoG secretary. A copy of the thesis will be kept in the school office for any faculty member to read prior to the defense. This copy will only be available to BPSoG faculty members, especially in cases where proprietary data may be contained in the thesis. The student will also forward via email a notice of thesis defense to the Seminar Coordinator, BPSoG secretary and the Graduate Advisor for distribution via email to the school’s faculty members and students. Ultimately, it is the student’s responsibility to ensure the notice is distributed.

8. The student is also responsible for posting a thesis defense notice on the bulletin boards in the school, as well as in the mailbox of each faculty member. These notices must be delivered/posted no later than one week prior to the defense. If this deadline is not met, the thesis must be rescheduled for a later date - Graduate College deadlines for the submission of required forms notwithstanding.

9. The student is responsible for meeting all deadlines - both those of the BPSoG and of the Graduate College. If the student does not meet these deadlines, the date of graduation must be changed.

10. Comments from the thesis committee members must be provided to the student at the time of the defense.

11. In order to ensure that students can complete their degrees in the allotted time, the thesis advisor/committee chair will complete a performance report each year (Appendix III). The student and advisor will work together to complete the form, indicating progress toward graduation (both courses and research), as well as performance goals for the next semester. The student and advisor must both sign this form. Copies will be forwarded to the Graduate Advisor and the school’s office. This form must be completed and submitted to the Graduate Advisor by the University deadline for submission of final grades for the spring semester. If this form is not submitted to the Graduate Advisor by this deadline, a student’s funding in upcoming semesters may be revoked.
12. Typical Timeline (assuming two years to completion). Note: The Graduate College has additional deadlines that must be met. The student is responsible for ensuring these deadlines are met. Failure to do so will result in the graduation being postponed. This timeline assumes that the student is working full-time toward his/her degree. Students that are supported as half-time teaching and/or research assistants and quarter-time teaching or research assistants plus scholarships/fellowships are assumed to be working full-time toward their degree and will be held to this timeline. Deviations from this schedule must be justified in the performance assessment report, and a new timeline for degree completion must be submitted to the Graduate Advisor with the performance assessment.

Graduate students, who are enrolled only part-time, due to such circumstances as employment outside the University or extensive family obligations, may make slower progress toward degree completion. Such circumstances and a modified timeline should be noted on the first performance assessment submitted by the student.

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Semester</th>
<th>Spring Semester</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-Coursework</td>
<td>-Determine thesis committee</td>
<td>-Research</td>
</tr>
<tr>
<td></td>
<td>-Select committee chair (and co-chairs, if appropriate)</td>
<td>-Complete and file Plan of Study</td>
<td>-Internship</td>
</tr>
<tr>
<td></td>
<td>-Determine thesis topic</td>
<td>-Prepare thesis proposal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Defend thesis proposal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Submit completed Performance Assessment to Graduate Advisor</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-Coursework</td>
<td>-Complete draft of thesis; work with advisor to revise until approved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Research</td>
<td>-Submit approved copies of draft to thesis committee</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Committee approves thesis as defendable. Submission of “Approved for Defense” form - at least two weeks prior to scheduled defense.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Submit a copy of the defendable draft to the school office - at least two weeks prior to defense.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Post notice of defense on bulletin board/mailboxes - at least one week prior to defense.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Meet all Graduate College Deadlines</td>
<td></td>
</tr>
</tbody>
</table>
PROCEDURE FOR COMPLETION OF DOCTORAL DISSERTATION

A. Program Objectives
The Ph.D. in Geology at OSU holds as its primary goal the creation of a highly educated workforce at the highest level of research and development in the field of geology. Towards this end, the program will emphasize the intellectual and academic strengths of the BPSoG of the following specific objectives:

- The program will offer advanced graduate education grounded in the traditions of geology, and incorporating broad training in the theory and techniques of the field and laboratory into a comprehensive doctoral program in geological research and development.
- The program will provide candidates with advanced education and field experience and will ensure that each student acquire skills and knowledge commensurate with the doctoral degree. Students pursuing the Ph.D. degree will be expected to specialize in one of the school’s focus areas (continental dynamics/tectonics, conventional and unconventional energy resources, environmental and groundwater studies, paleo-climate and climate change, geophysics and remote sensing), and will also be expected to develop a broad understanding of the discipline’s theoretical foundations and traditions.
- The program will encourage a multidisciplinary context for research by strongly recommending that students take coursework outside the School of Geology (up to 12 hours to be included in the student’s Plan of Study), and require that one member of the student’s doctoral committee of the at least four faculty members be from outside the School. Interdepartmental research among faculty and students is an increasingly important trend among research universities with high research activities (RU/H as classified by the Carnegie Foundation for the Advancement of Teaching).
- The program will promote and maintain a growing state, national, and international workforce from the added geologic research capabilities at the Ph.D. level at OSU, while also supplying the Oklahoma and national petroleum and environmental industries with the highest caliber research scientists in the field of geology.

B. Curriculum
The Ph.D. in Geology is founded upon a specific plan of advanced graduate study with the built-in flexibility needed to accommodate the intellectual needs of the individual student. The underlying philosophy of the plan holds to the criteria that the student must gain a foundation in the basic principles of geology while allowing a degree of freedom for the individual to develop merit as an independent scientist.

1. Student Advisory Committee. Upon admission to the Ph.D. program, the doctoral student will consult with faculty members and designate an academic advisor from among the school’s faculty who is a member of the Graduate Faculty with doctoral
privileges. Upon the recommendation of the Academic Advisor, an advisory committee consisting of a chair of the committee (typically the student’s Academic Advisor) and at least three other members of the graduate faculty - including one member from outside the school - will be chosen. All members of a student’s advisory committee will participate as peers and have the responsibility for planning the program of study, advising the student, administering the comprehensive examination, and ensuring that the student’s doctoral program is of high quality. In consultation with the student, the advisory committee is responsible for advising on the courses to be taken and approving plans for developing the student’s capacity for productive scholarship. The advisory committee will meet formally with the student no less than once per year, preferably once per semester.

2. Plan of Study with Minimum Degree Requirements. A minimum of 60 credit-hours beyond the M.S. or M.A. degree are required for a Ph.D. By the end of the second semester the students will be required to meet with their advisory committee and determine a Plan of Study to be filed with the Graduate College. The course requirements for the Ph.D. in Geology are flexible, allowing students to pursue a highly individualized Plan of Study to develop expertise tailored to their personal interests and professional goals. Therefore are only two courses are required: GEOL 5300 (Geology Colloquium) to be taken twice in two different semesters and GEOL 5243 (Research Methods and Techniques in Geosciences) preferably to be taken during the first semester of enrollment in the PhD program. However, each student will be expected to develop a broad knowledge base in geological principles. Up to 12 hours of non-geology courses may count toward the plan of study. The remaining non-dissertation hours will consist of graduate level coursework in geology. The general structure of the Plan of Study is outlined in Tables 1A and 1B.

The Graduate College requires all doctoral students to submit a Plan of Study prior to completing 28 credit hours of graduate coursework, which will typically mean the end of a student’s fourth semester, if they are enrolled full-time. The Plan of Study must be signed by the student’s Dissertation Advisor and dissertation committee members.

Appendix IV contains a list of courses that may be taken for graduate credit in the BPSoG.

Table 1A: General Plan of Study for Ph.D. students who hold an M.S. in Geology or the equivalent upon enrollment.

<table>
<thead>
<tr>
<th>1. Non-dissertation courses</th>
<th>2. Research and Dissertation†</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Required GEOL 5300 and GEOL 5243 (5 hours)</td>
<td>40 hours</td>
</tr>
<tr>
<td>b. Additional coursework in Geology* 15 hours</td>
<td></td>
</tr>
</tbody>
</table>

*Up to 12 hours of non-geology courses may count toward the plan of study.
†40 hours of research and dissertation credit is required.
Table 1B. General Plan of Study for Ph.D. students who do not hold an M.S. in Geology or equivalent upon enrollment.

<table>
<thead>
<tr>
<th>1. Non-dissertation courses</th>
<th>GEOL 5300 and GEOL 5243</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Required</td>
<td>5 hours</td>
</tr>
<tr>
<td>b. Additional coursework in Geology*</td>
<td>35 hours</td>
</tr>
<tr>
<td>2. Research and Dissertation†</td>
<td>50 hours</td>
</tr>
</tbody>
</table>

*up to 12 hours of coursework may be taken outside of GEOL
† at the discretion of the advisory committee, up to 20 hours of dissertation hours maybe replaced by additional course hours.

3. Foreign Language and Quantitative Skills Requirements. There is no foreign language requirement for a Ph.D. in Geology. However, certain research projects may require knowledge of a foreign language. Further, students may be asked to take classes in fields other than geology that augment quantitative skills required to effectively carry out their dissertation research.

4. Advancement to Candidacy. In addition to the Plan of Study and the coursework required for a Ph.D., two requirements will be implemented to ensure professional competence and facilitate guidance along a track towards the completion of a dissertation. These include a preliminary examination and a dissertation proposal defense/comprehensive examination.

a. Preliminary Examination. By the end of their second semester of enrollment, each Ph.D. student will complete a Preliminary Examination. This examination will consist of two parts: a written and oral examination. The written examination will be designed to assess the Ph.D. student mastery of the overall field of geology, as well as more specialized knowledge related to each student’s sub-discipline. The examination will be given on a single date each semester, which will be determined and announced by the Preliminary Examining Committee, no later than three weeks after the start of the semester.

i. Each academic year, a Preliminary Examining Committee will be formed. This committee will be made up of at least five BPSoG faculty members, who need not necessarily be on the advisory committees of the potential Ph.D. candidates taking preliminary examinations that year. The Preliminary Examining Committee will be responsible for the development and grading of the written exam and for administering the oral examination.

ii. The written examination will be completed in four hours, and will consist of two parts. The first set of four questions will be for all students taking the examination at that time. These questions can be written by any member of the faculty of the BPSoG, and will be designed to assess the broad body of knowledge that all professional geologists are expected to know. The second set of questions will be tailored to specifically assess knowledge related to each
student’s sub-discipline, and will normally be written by the Ph.D. student’s academic advisor, or a member of their advisory committee. Thus, the second portion of the written examination will consist of several questions, from which each student will be expected to answer two.

iii. Within two weeks of the written examination being completed and graded, an oral examination will be conducted with each student. The oral portion of the qualifying examination will be designed to further test each student’s broad knowledge, as well as provide an opportunity to further discuss their written answers. After each oral examination, the Preliminary Examining Committee will decide by a majority vote of those present if the student passes the examination. Possible outcomes will be:

(a) Unqualified pass.
(b) Qualified pass. The Preliminary Examination Committee will recommend additional course work that the student must take prior to the comprehensive examination.
(c) Fail

The qualifying examination may be taken a maximum of one additional time within six months of the original attempt. If the Ph.D. student failed the examination the second time, the student will be dropped from the Ph.D. program of the School of Geology.

b. Dissertation Proposal Defense/Comprehensive Examination. After the end of the student’s third semester, but no later than the end of their fifth semester, the student will be required to defend their dissertation proposal and pass an associated comprehensive examination.

i. At least three weeks prior to the scheduled defense/comprehensive examination date, each student will provide members of the advisory committee and the BPSoG office with a written copy of the dissertation proposal. The student will be expected to make a public presentation of their proposal. The audience will include a quorum of at least half of the faculty in the BPSoG and all members of the student’s advisory committee.

ii. The public presentation will be followed by a closed oral examination of the student, conducted by the advisory committee. Questions will concern the proposal, progress in the student’s dissertation research, as well as general geology topics over which the faculty believes a doctoral candidate should have mastery. The advisory committee members will then decide if the candidate passes the examination. Possible outcomes will be:

(a) Unqualified pass. The student is conferred with candidacy. The Admission to Doctoral Candidacy form should be completed and forwarded to the Graduate College.
(b) Qualified pass. The Advisory Committee will recommend additional work that the student must complete prior to being awarded candidacy.

(c) Fail.

The dissertation proposal defense/comprehensive examination may be taken a maximum of one additional time after the original attempt. If the Ph.D. student failed the examination the second time, the student will be dropped from the Ph.D. program of the BPSoG.

5. Ph.D. Dissertation Research and Oral Defense. A public presentation of the completed dissertation will take place, including public questions and answers, after a completed draft of the dissertation has been approved by the Advisory Committee. The public dissertation defense will be followed by a closed question and answer session with the Advisory Committee. The Advisory Committee will then decide by a majority vote if the student has successfully defended their dissertation. Possible outcomes will be:

(a) Unqualified pass. Only minimal revision is required to complete the dissertation.

(b) Qualified pass. There is substantial revision required to complete the dissertation.

(c) Fail.

The dissertation defense may be taken a maximum of one additional time if the first attempt results in a fail. If the second attempt results in a failing grade, the student will be asked to leave the Ph.D. program of the BPSoG. Upon successfully completing the dissertation defense with an Unqualified Pass or a Qualified Pass, and completing the revisions required by the Advisory Committee members, the Ph.D. degree will be conferred.

An ideal timeline of the Ph.D. degree curriculum is listed in Table 2:

| Table 2: Ideal Timeline for Progression to Doctoral Candidacy and Conferring of the Ph.D. |
|---|---|---|
| **Fall Semester** | **Spring Semester** | **Summer Semester** |
| **Year 1** | | |
| Coursework. | Coursework | Coursework |
| Selection of Academic Advisor. | Preliminary Exam | Continued work on development of dissertation. |
| Creation of advising committee. | | |
| Development of dissertation project. | | |
| **Year 2** | | |
| Dissertation research | Additional work as may be required following dissertation proposal defense | Dissertation research. |
| Writing of dissertation proposal | | |
| Dissertation proposal defense/comprehensive exam | | |
| Complete and file Plan of Study | Dissertation research. | |
| **Year 3** | | |
| Dissertation research. | Dissertation research. | |
| **Year 4** | | |
| Research | Dissertation research. | |
| Preparation of dissertation | | |
| | | Dissertation defense. |
C. Other Regulations

1. The required format for a completed dissertation is typically a collection of at least three manuscripts that are worthy of publication in national/international peer-reviewed journals. At least one manuscript must be accepted for publication in a national/international peer-reviewed journal for a dissertation to be considered “defendable”. These manuscripts will be accompanied by a minimum of introduction and conclusion chapters. Additional data that does not fit within the manuscripts must also be included as an appendix or appendices as needed. In extenuating circumstances, the dissertation may be written in a book format. This process requires the approval of the School of Geology faculty. Such approval must be obtained well in advance of the anticipated dissertation defense.

2. When the dissertation is complete, the doctoral student will first submit an initial draft to the dissertation advisor. The advisor will generally return the draft with comments no later than two weeks after submission. No parts of the dissertation can be missing from this first draft. The student makes the corrections, and resubmits the draft to the advisor. The submission of the draft to the advisor can occur independently from the required submission to the Graduate College.

3. Once the dissertation chair approves the revisions, the student provides copies of the draft dissertation to the other Advisory Committee members. The committee has one month to review the dissertation, and inform the student whether the dissertation is “defendable”. The dissertation defense may NOT be scheduled until the dissertation has been approved as “defendable” by at least four of the five Advisory Committee members. Once the dissertation has been approved as “defendable”, the committee will sign the “Authorization to Defend Dissertation” form (Appendix II), and submit it to the Graduate College office. The student will then work with the dissertation committee members and the Seminar Coordinator to schedule a dissertation defense, no earlier than TWO WEEKS after submitting the “Authorization to Defend Dissertation” form.

4. When the dissertation defense has been scheduled, the student will also give a copy of the dissertation to the School of Geology secretary. A copy of the dissertation will be kept in the school’s office for any faculty member to read prior to the defense. The student will also forward via email a notice of dissertation defense to the Seminar Coordinator, school’s secretary and Graduate Advisor for distribution via email to the faculty and all geology students.

5. The student is also responsible for posting a dissertation defense notice on the bulletin boards in the school, as well as in the mailbox of each faculty member. These notices must be delivered/posted at least ONE WEEK prior to the defense. If this deadline is not met, the defense must be rescheduled for a later date - Graduate College deadlines for the submission of required forms notwithstanding.
6. The student is responsible for meeting all deadlines - both those of the School of Geology and of the Graduate College. If the student does not meet their deadlines, the date of graduation must be changed.

7. Comments from the dissertation committee members regarding changes to the written dissertation must be provided to the student at the conclusion of the defense.

8. In order to ensure that students can complete their degrees in the allotted time, the dissertation advisor/committee chair will complete a performance report each semester. The student and advisor will work together to complete the form, indicating progress toward graduation (both courses and research), as well as performance goals for the next semester. The student and advisor must both sign this form. Copies will be forwarded to the Graduate Advisor and the school’s office. This form must be completed and submitted to the Graduate Advisor by the University deadline for submission of final grades for each semester. If this form is not submitted to the Graduate Advisor by this deadline, a student’s funding in upcoming semesters may be revoked.

PROCEDURE FOR COMPLETION OF PERFORMANCE ASSESSMENT

1. The Performance Assessment (Appendix III) will be used to track student progress toward their completion of graduation requirements. The Performance Assessment will be completed by the student and their advisor prior to the end of the spring semester. The student is responsible for ensuring that a completed Performance Assessment form is submitted to the Graduate Advisor before the final grade due date of the spring semester.

2. Prior to meeting with their advisor to complete the Performance Assessment, the student is expected to prepare a draft, consisting of: progress/achievements during the current semester and goals/objectives for the upcoming semester. The student and advisor will then meet to discuss progress and goals/objectives, and agree on the text to be submitted on the Performance Assessment. The advisor and student will then sign the document, indicating their agreement with the assessment.

3. Poor performance and progress toward the completion of a thesis or a dissertation, as documented on the Performance Assessment, can and will be used in decisions regarding continuation of student support with scholarships, fellowships and teaching and research assistantships.
Appendix I

Boone Pickens School of Geology
Oklahoma State University
Master Thesis Research Proposal Defense Results

Date: __________
Student Name: ____________________________
CWID #: ________

The above student appeared for his/her MS thesis research proposal defense. The student’s research committee decided:

   The student passed the defense.
   The Student passed the defense with some conditions.
   The student did not pass the defense.

Conditions: __________________________________________
____________________________________________________
____________________________________________________
____________________________________________________
____________________________________________________

______________________________  ____________
Committee Chair Name          Signature

______________________________  ____________
Committee Member Name          Signature

______________________________  ____________
Committee Member Name          Signature
Appendix II
AUTHORIZATION TO DEFEND THESIS/DISSERTATION
BOONE PICKENS SCHOOL OF GEOLOGY

Student Name: ____________________________________________

Date: ____________________________________________________

Authorization to Defend Master’s Thesis

Chair: ____________________________________________________

________________________________________________________

Date

Member: __________________________________________________

Date

Member: __________________________________________________

Date

Member: __________________________________________________

Date

Member: __________________________________________________

Date

Authorization to Defend Dissertation

Chair: ____________________________________________________

Date

Member: __________________________________________________

Date

Member: __________________________________________________

Date

Member: __________________________________________________

Date

Member: __________________________________________________

Date

Member: __________________________________________________

Date

Anticipated Defense Date: ____________________________
Appendix III

Graduate Student Performance Assessment
Boone Pickens School of Geology

Student Name: _______________________________________
Advisor: ____________________________________________
Semester: ___________________________________________

Courses

Courses taken during the semester        Courses to be completed
Title                 Expected Grade              Title

Achievements during the Current Semester:
If applicable, what were the specific goals from the previous semester’s Performance Assessment?

Planned Goals for the Upcoming Semester:
III. Publications  
List manuscripts and presentations

IV. Other accomplishments and services  
List other accomplishments such as research grants, awards, internships, job offers, service activities etc.  

Decision after committee meets with students and discusses performance.  
1) Student is making enough progress and expected to complete the degree in a timely fashion.  
2) Student is making progress but lacking behind in some aspects (identify problem areas).  
3) Student is lagging behind. Needs to make significant progress.  
4) Student is seriously lacking behind. Support should be terminated.  
5) Student is not making any progress and should be terminated from the program.  
   Justification (if needed):

Anticipated Graduation Date: _________________  
Advisor Signature: _____________________________  
Student Signature: _____________________________  
Graduate Advisor Signature: _______________________
Appendix IV

CURRENT COURSE OFFERINGS THAT MAY BE TAKEN FOR GRADUATE CREDIT
From the 2009 University Catalog. Current as of February 2, 2010; subject to change

* Designates undergraduate courses that can be taken for graduate credit.

All courses numbered 5000 and above are graduate-level courses. 5000-level courses are appropriate for master’s students. Courses numbered 6000 and above may be taken by master’s students with instructor approval.

1. GEOL 3034*
   Principles of Stratigraphy and Sedimentology. Lab 3. Prerequisite: GEOL 1224. Principles of stratigraphy and their applications. Laboratory emphasizes realistic practical problems undertaken in the field and in the laboratory. Field trips required. Non-majors may receive graduate credit.

2. GEOL 3073*
   Geomorphology. Lab 2. Prerequisites: GEOL 1114 or consent of instructor. Study of land forms and the processes that form them, using topographic maps, air photos, remotely-sensed images, soils maps and field techniques. Field trips required.

3. GEOL 3353*

4. GEOL 3546*
   Field Geology. Lab 6. Prerequisites: GEOL 2364, GEOL 3014, GEOL 3034, GEOL 3073. Six weeks of field methods in geology. Required of all geology majors. Transportation, room and board fees required.

5. GEOL 4023*
   Petroleum Geology. Prerequisites: GEOL 3014 and GEOL 3034. Origin, migration and accumulation of petroleum, requirements for source rock, reservoir rock and traps. Structure and stratigraphy of selected oil fields. Field trips required.

6. GEOL 4030*
   Geologic Field Investigation. 1-3 credits, max 3. Prerequisite: 1014 or 1114. One to three weeks of required field study at sites of geological interest and significance. Field trip charges apply. Does not substitute for GEOL 3546. No credit for students who have credit in 5030.
7. **GEOL 4103***
*Introduction to Geophysical Exploration Methods.* Lab 2. Prerequisite(s): PHYS 2014 and 2114; upper-division standing; MATH 2103 recommended. An overview of geophysical methods and their applications to exploration, environmental and engineering problems. Seismic reflection and refraction methods, gravity, magnetic, resistivity and electromagnetic methods. A field trip required.

8. **GEOL 4203***
*Seismic Interpretation.* Prerequisite: GEOL 4103. Examination of the reflection seismic interpretation methods with emphasis on the oil and gas industry. Both structural and stratigraphic methods. Hands-on interpretation using a standard industry software package.

9. **GEOL 4213***
*Plate Tectonics.* Prerequisite: GEOL 1114. Principles and major concepts of plate tectonics, the unifying theory of earth sciences. Geology and plate tectonics evolution of major mountain chains of North America: Ouachitas, Appalachians, and Cordillerans. Field trip required.

10. **GEOL 4303***
*Geophysical Field Methods.* Lab 2. Prerequisite: GEOL 4103. Hands-on field investigations using the different geophysical methods including electrical resistivity/induced polarization, electromagnetic, ground penetrating radar, gravity, magnetic, seismic methods. Instrumentation, field data acquisition, and interpretation will be emphasized. Several field trips and field project required.

11. **GEOL 4403***
*Geochemistry.* Prerequisites CHEM 1314 and 1515 or concurrent enrollment, MATH 1715, GEOL 1014 or GEOL 1114 or equivalent. Application of chemical principles to geological processes. Processes affecting the composition of surface and ground waters.

12. **GEOL 4453***
*Hydrogeology.* The water cycle and groundwater systems as well as general problems related to ground-water occurrence, quantity, quality and pollution. Field trip required.

13. **GEOL 4463***
*Physical Hydrogeology.* Lab 2. Prerequisite: GEOL 4453 recommended, but not required. Physical ground-water systems. Realistic problems to acquaint students with ground-water occurrence and movement. Geologic, geophysical, hydraulic testing and modeling techniques used to define an actual ground-water system. Ground-water regulations. Field trips required.

14. **GEOL 4563***
*Sedimentology.* Lab 3. Prerequisites: GEOL 3546, senior standing. Sediments, sedimentary processes and sedimentary environments, geometry and internal features of sediments. Field trips required.
15. **GEOL 4663***
*Global Geologic Resources.* Distribution and analysis of global mineral, energy, and water resources. Economic, environmental, social and political impact of selected resources on local to global scales.

16. **GEOL 4990***
*Special Problems in Earth Science.* 1-8 credits, maximum 8. Prerequisites: 25 hours of geology and permission of instructor. Individually designed study projects involving assigned reading, library work, field work, laboratory work or a combination of these. Field trips may be required.

17. **GEOL 5000**
*Thesis.* 1-6 credits, maximum 6. Prerequisite: approval of graduate committee. Work toward master’s thesis in geology.

18. **GEOL 5030**
*Geologic Field Investigation.* 1-3 credits, max 3. One to three weeks of required field study at sites of geological interest and significance. Emphasis will be placed on applicability to graduate research. Field trip charges apply. No credit for students who have credit in 4030.

19. **GEOL 5050**
*Problems in Economic Geology.* 1-3 credits, maximum 6. Prerequisite: consent of instructor. Individually-designed problems in economic geology. Field trips may be required.

20. **GEOL 5073**
*Fluvial Geomorphology.* Prerequisite: GEOL 3073 or consent of instructor. Landforms and processes related to the actions of running water in stream channels and on hillslopes. Field trips required.

21. **GEOL 5100**
*Problems in Hydrogeology.* 1-4 credits, maximum 8. Prerequisite: GEOL 4453. Advanced problems in hydrogeology with emphasis on quantitative methods. Field trips may be required.

22. **GEOL 5183**
*Paleontology of Depositional Sequences.* Lab 2. Prerequisite(s): Graduate standing or permission of instructor. Paleoecology and biostratigraphy of depositional sequences. Evenly divided between lecture and laboratory components and field trips are mandatory.
23. GEOL 5223
Advanced Methods in Structural Geology. Lab 3. Prerequisite: GEOL 3014. Advanced geometric techniques and analysis of complex structural terrains. Elucidation of geometry and history of geological structures by interpreting seismic reflection profiles and constructing balanced cross-sections. Field trips required.

24. GEOL 5233
Trace Elements in Hydrogeology. Lab 2. Prerequisite: CHEM 1515. Examination of the behavior of various trace elements in the aqueous environment. Availability and mobility of selected trace elements, the characterization of geochemical environments, pe-pH stability fields, adsorption and other parameters that affect element mobility. Introduction to thermodynamic water-equilibrium computer programs.

25. GEOL 5243
Research Methods in Sedimentology and Stratigraphy. Methods/techniques for solving practical scientific problems in sedimentary rocks and stratigraphy. Topics will include scientific method, definitions of a research problem, and sampling. Techniques for characterizing sedimentary rocks will focus on rock mineralogy/texture, porosity/permeability and associations/stacking patterns of stratigraphic sequences.

26. GEOL 5253

27. GEOL 5283
Subsurface Geologic Methods. Lab 3. Prerequisites: GEOL 3014, GEOL 3034. Use of subsurface geologic information from cores and well logs to prepare maps and identify oil and gas prospects. Field trip required.

28. GEOL 5300
Geology Colloquium 1 credit, max 2. Prerequisite(s): Graduate standing. Discussion of selected topics in the geological sciences with emphasis on professional presentation practices.

29. GEOL 5353
Advanced Well Log Analysis. Lab 3. Prerequisite: GEOL 3034. The geologic interpretation of a variety of well logs emphasized, as well as quantitative methods. Some exercises involve concurrent interpretation of well logs and core samples, or well logs and bit cuttings.
30. **GEOL 5363**  
*Carbonate Sedimentology and Petrology.* Lab 2. Prerequisites: 2364 and 4403. Systematic study of carbonate and associated sedimentary rocks including depositional environments, stratigraphic occurrence, and diagenesis. Application of petrographic, geochemical and field methods. Field trips required.

31. **GEOL 5383**  
*Sequence Stratigraphy.* Lab 2. Prerequisites: GEOL 5253, GEOL 5353, GEOL 5363. Principles of sequence stratigraphy including carbonate and siliciclastic dominated intra-cratonic basins. Integration of surface and subsurface data in projects. Field trips required.

32. **GEOL 5453**  
*Advanced Hydrogeology.* Lab 3. Prerequisites: GEOL 4453, CS 2113 or equivalent, MATH 2145 and 2155 or equivalent. Advanced quantitative techniques used to address ground-water management and pollution. Advanced field and laboratory techniques as well as management and chemical transport models applied to actual field problems and case studies. Field trips required.

33. **GEOL 5513**  
*Marine Geology.* Prerequisites: CHEM 1314 or equivalent; PHYS 1114 or 2014 or equivalent; GEOL 3034 or equivalent. Comprehensive examination of the geology of the oceans. Topics include techniques of data collection and interpretation, physical oceanography, origin of marine sediments, marine tectonics and ocean history. No credit for students with credit in 4513.

34. **GEOL 5523**  
*Environmental Organic Geochemistry.* Prerequisites: CHEM 1314 and 1515 or equivalent; GEOL 3034 or equivalent; GEOL 4403 or equivalent or permission of the instructor. Introduction to some environmental aspects of organic geochemistry. Soils and sediments as pollutant receptors, sources of pollutants and selected aspects of environmental health.

35. **GEOL 5533**  
*Organic Geochemistry.* Prerequisites: CHEM 1314 and 1515 or equivalent; GEOL 3034 or equivalent. Chemistry of organic matter in sediments and rocks, with an emphasis on marine and petroleum systems.

36. **GEOL 5553**  
37. GEOL 5603  
_Basin Analysis._ Lab 1. Prerequisites: GEOL 3546, GEOL 5203, GEOL 5223, GEOL 5253, GEOL 5363. Team-taught course. Interpretations of the evolution of selected sedimentary basins. Emphasis on facies analysis, petrography, diagenesis, and structural evolution. Field trips required.

38. GEOL 5710  
*Advanced Studies in Geology.* 1-4 credits, maximum 8. Prerequisite: consent of instructor. Individual library, laboratory and/or field projects on facets of geology not covered by existing courses. Field trips may be required.

39. GEOL 5773  
*Planetary Geology._ Lab 2. Prerequisites: GEOL 1114. Upper-division standing in the natural sciences; ASTR 1014 recommended. Geophysics and tectonics of planetary interiors; geomorphology and sedimentology of planetary surfaces; geochemistry and mineralogy of planetary materials; geologic factors that could affect life on other planets; interpretation of geologic data from planetary exploration. Field trips required.

40. GEOL 6000  
*Doctoral Dissertation Research._ 1-12 credits, max 60. Work toward doctoral dissertation in Geology.

41. GEOL 6103  
*Gravity and Magnetic Methods._ Lab 2. Prerequisite: GEOL 4103. Principles of gravity and magnetic methods applied to petroleum, mineral, and groundwater exploration. Engineering applications will also be discussed. Data acquisition, processing and modeling using standard industry software will be emphasized.

42. GEOL 6133  
*Unconventional Petroleum Reservoirs._ Prerequisite: GEOL 4023. Review of unconventional sources of oil and gas production including coalbed methane, tight gas-sandstones, gas and oil-bearing shales and transition zone, high-water saturation sandstones and carbonates.

43. GEOL 6283  
*Geology of Shales._ Lab 2. Prerequisite: Graduate standing or permission of instructor. Team-taught course that combines different geological techniques towards gaining a better understanding of shales as source and reservoir rock. These include petrography, XRD, SEM, Organic and Inorganic chemistry, geophysical logs, paleoecology and biostratigraphy. This course will involve lecture as well as laboratory techniques.
44. GEOL 6303
Electrical and Electromagnetic Methods. Lab 2. Prerequisite: GEOL 4103. Principles of the different geoelectrical methods, including electrical resistivity, induced polarization, self potential, electromagnetic, and ground penetrating radar will be emphasized. Geophysical instrumentation, laboratory measurements of physical properties, field procedures, and basic interpretation and near surface geophysical applications will be discussed. Recent advances in geoelectrical methods and case studies will be examined by reviewing current literature. Field trip required.

45. GEOL 6386
Sequence Stratigraphy of Shales. Lab 12. Prerequisite: Graduate standing. Intensive field course focusing on hydrocarbon-bearing shales of the Midcontinent. Advanced field techniques including high resolution spectral gamma ray analysis and highly detailed measured sections will be taught. Fifty localities including Devonian-Early Mississippian (Woodford and Chattanooga shales), Upper Mississippian (Barnett, Caney, and Fayetteville shales) and Pennsylvanian-Lower Permian shales will be analyzed.

46. GEOL 6403
Biogeophysics. Lab 2. Prerequisite(s): GEOL 5443 or GEOL 4103 or GEOL 6303. Introduces students to the important role that microbes play in geologic processes and explores current cutting-edge research available to investigate these processes. Interactions of microorganisms with earth materials (soils, rocks, water, etc.) and geophysical methods used to investigate microbial processes will be emphasized.
Appendix IV

SUGGESTED GUIDELINES FOR THE PREPARATION OF THE THESIS/DISSERTATION PROPOSAL

Note: These are suggested guidelines. Some students may choose to follow a different format, after consultation with their advisor/committee chair.

1. Introduction
   A. Problem Statement (one concise sentence) - what hypothesis will you be testing—and significance (who would potentially be interested in your study)?
   B. Purpose (one sentence) and Objectives (itemize the major research questions)
   C. Study area (location and description). Justify your choice of study area...is it just convenient or especially well-suited to achieve purpose and objectives.

2. Literature Review (subsections for each major research objective)
   A. Demonstrate that you are familiar with the literature on this topic.
   B. Summarize what is already understood and what is still NOT well understood
   C. Do competing schools of thought exist?
   D. Has the topic been studied anywhere? If so, what was found? What remains to be understood?
   E. Has it been studied in your study area? If so, what are the previous findings? Why should the topic be re-visited? If not, what might be different about your study area?

3. Methodology (sub-sections for each major research objective)
   A. Justify why each procedure is needed and why that particular method is best suited for your study.
   B. Techniques of data acquisition: what, how many, where, how often. Will you be conducting field measurements, laboratory experiments, using remote sensing data or map interpretation?
   C. Techniques of data analysis: Statistics, computer analyses, etc?

4. Expected Findings and Deliverables
   A. How will your data prove your hypothesis?
   B. What if your data shows different trends—what will your interpretation be?
   C. What broader implications will there be to your work?
   D. At what meetings (where and when) will you report your results?
   E. To what journal will your manuscript be submitted? What additional data will be included in your thesis appendices?

5. Budget
   A. Fieldwork: mileage, vehicle rental, food, lodging
   B. Equipment: sample collection, field instruments
C. Analyses: chemicals, costs to have analyses conducted at a commercial lab, travel for you to do analyses at another lab, laboratory supplies (beakers, gloves, etc)

D. Travel: costs to attend a regional or national meeting to present your work