



TEXAS TECH UNIVERSITY

Bob L. Herd Department  
of Petroleum Engineering™

*Doctoral Program  
Handbook*

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## Welcome:

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Welcome to the Bob L. Herd Department of Petroleum Engineering at Texas Tech University. This handbook contains information that is essential to your success in this department. You are responsible for becoming familiar with this handbook and following the instructions provided. This handbook aims to answer questions that you may have over the course of your time in this department.

This handbook clarifies the policies, procedures, and guidelines for completing the PHD degree in Petroleum Engineering. Policies regarding various aspects of graduate student activities are established to protect students as well as to maintain high standards of the program. Compliance with stated policies, procedures, and guidelines is the responsibility of the student, and failure to do so may result in suspension, probation, or delay in graduation. The policies stated herein supplement those for the Graduate School at Texas Tech University and do not in any way supersede those standards already documented. Students are encouraged to become familiar with the policies and those published in the Graduate Catalog, available at: <http://www.depts.ttu.edu/officialpublications/catalog/index.php>

If you have further questions, please contact the Graduate Advisor or the Academic Coordinator.

Dr. Habib Menouar

Associate Professor/Graduate Advisor

[Habib.menouar@ttu.edu](mailto:Habib.menouar@ttu.edu)

Charlotte Lee-Stockton

Academic Admin Coordinator

[Charlotte.stockton@ttu.edu](mailto:Charlotte.stockton@ttu.edu)

# University Academic Regulation

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## 1. Full-time study

All graduate students are required to be enrolled in spring and fall semesters. Students with assistantships or other appointments (TA, RA) are required to keep full-time status in both summer sessions. This requirement means that students that are RA's or TA's must be enrolled in the summer sessions (3 credit hours each session).

Full-time is considered for long semesters to be between 9-16 credit hours and 3 credit hours for summer sessions.

## 2. Continuous Enrollment

Students who have begun thesis or dissertation research must register for 6000 or 8000 courses, respectively, in each regular semester and at least once each summer until all degree requirements have been completed, unless granted an official leave of absence from the program for medical or other exceptional reasons. Students officially classified as off-campus students may register for 1 hour of 6000 or 8000 with departmental approval until their final semester, at which time they must enroll in at least 3 hours.

## 3. Leave of Absence

Any student who fails to register during a fall or spring semester and who does not have an official leave of absence form is subject to review for readmission by the standards in effect at the time of reconsideration. Official leave of absence, which is granted by the Dean of the Graduate School upon department recommendation, may be requested only in case of serious medical conditions and other exceptional reasons. Normally, leaves of absence will not exceed one year. Leaves of absences do not extend the maximum time allowed for completion of the degree.

## 4. Required Thesis/Dissertation Hours

Registration for at least 6 hours of 6000 is required for master's thesis, 6 hours of 6001 for non-thesis, and at least 12 hours for doctoral dissertation. Once the project has begun, a student must be enrolled in such courses every semester and at least one term during the summer until completion. A student should enroll under the committee chairperson; however, in those instances in which other professors on the committee are making substantial contribution to the student's research, it is permissible for the student to enroll proportionally under those professors. Students certified as off-campus may enroll for as little as 1 hour until their final semester, at which time 3 hours minimum is required.

Students may not enroll in thesis or dissertation courses before the formal admission to a degree program by the graduate dean.

Enrollment for thesis or dissertation courses is permitted only during a regular registration period. Students away from the campus may, however, register for such courses by mail, provided arrangements are made with the registrar's office by telephone or electronically prior to the beginning of a registration period.

Students are required to register for appropriate courses in every semester or summer term in which they are expected to receive assistance, use the facilities of the university, or take comprehensive examinations.

The number of hours for which students must enroll in each semester depends on their level of involvement in research and their use of university facilities and faculty time. Students in residence who are devoting full time to research should enroll for 9 to 12 hours.

#### 5. Registration in the Semester of Graduation

There are 3 official graduations dates: December, May, and August. Every candidate for a graduate degree must be registered in the Graduate School in the session of graduation. Students must be registered for at least 3 hours of coursework at the 6000 level (thesis option) or the 8000 level (doctoral students) or they must register for 1 hour of non-thesis coursework at the 7000 level (individual study) if all requirements are met. Failure to graduate at the expected time requires such additional registrations as may be necessary graduation. A new "Statement of Intention to Graduate" is required for each semester.

#### 6. Maximum Allowable Doctoral Hours

Students not making timely progress toward completion of the doctoral degree are subject to termination by the graduate dean. The Texas Legislature has capped fundable graduate study at 99 doctoral hours for most programs and may impose sanctions upon universities permitting registration for excess hours. Graduate students with more than 99 doctoral hours will be require to pay out-of-state tuition, regardless of residence status. The maximum time allowed for completing a doctoral degree is EIGHT years from the first doctoral semester or FOUR years from admission to candidacy, whichever comes first. The graduate dean must approve exceptions or extensions in advance.

#### 7. Maximum Allowable Graduate Hours (except doctoral programs)

Students who are in programs other than doctoral programs and are not making timely progress toward completion of their degree are subject to termination by

the graduate dean. Graduate students beyond the maximum allowable graduate hours are determined by the Texas Legislature may be required to pay out-of-state tuition, regardless of residence status. The maximum time allowed for completing a master's degree is six years. The graduate dean must approve exceptions or extensions in advance.

## 8. Academic Probation and Suspension

Every student enrolled in the Graduate School, whether working toward a degree or not, is required to maintain a high level of performance and to comply fully with the policies of the institution. The Graduate School reserves the right to place on probation or suspend any post-baccalaureate or graduate student who does not maintain satisfactory academic standing or who fails to conform to the regulations of the university.

Students whose cumulative graduate GPA falls below 3.0 are placed on academic probation and have two consecutive terms to raise their cumulative GPA to at least 3.0 to avoid academic suspension from the Graduate School. If their semester GPA drops below 3.0 during the two-semester period, students are subject to academic suspension from the Graduate School. If their cumulative graduate GPA remains less than 3.0 and their term GPA is greater than 3.0 in the next term, they are placed on continued probation. If the student's overall GPA remains below 3.0 in the following term, they are placed on academic suspension. In accordance with OP 64.07 (found on page 29), any student who has been suspended must appeal to the Graduate School if reinstatement is desired. A student who is suspended twice will not be allowed to return to the Graduate School. Students may be suspended for unprofessional conduct such as cheating or plagiarism. Any appeal of such action is subject to the provisions of the Code of Student Conduct.

## Graduate Financial Aid & Scholarships

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There are various financial aid possibilities available to graduate students who decide to enroll in the graduate program at Texas Tech University. However, this will not be effective before one or two semesters after the graduate students join the program.

Four sources of financial support exist in the department:

### 1. Teaching Assistantship (TA)

Students may apply to be a Teaching Assistant after they have successfully passed the ITA (International Teaching Assistant) workshop, if English is their second language. TA's are required to be full-time students and are required to take online Lab Safety training, EEO, and FERPA training as well as attend safety briefings. Students are appointed for three years but are regularly assessed on their performance and may be terminated before the three years if the TA is not performing adequately or not making substantial progress toward their degree, for instance, the TA has not passed the PhD qualifying exam in the first one and half years. TA positions are preferably assigned to the PhD students who have passed the PhD qualifying exam. TA's are expected to work 20 hours a week on the course that they are assigned to, and 40 hours a week on their dissertation research.

### 2. Research Assistantship (RA)

These positions depend on the research activity in the department. Faculty who have funded research projects may need help and offer positions to qualified graduate students to help the project managers complete their projects. Research assistants are offered salaries comparable to teaching assistants. These salaries should be sufficient for the students to pay for their living expenses and tuition fees.

### 3. Scholarship/Fellowship Opportunities

Various scholarships are available at different levels in the university (COE, graduate school, etc.) Graduate students need to apply for these scholarships individually. Even though the amount of money varies from one type of scholarship to the next, all students are urged to apply as soon as they join the graduate program. An added advantage of these scholarships is that they entitle international as well as non-resident graduate students to benefit from substantially discounted tuition fees.

### 4. Part-time Jobs

The Petroleum Engineering Department has positions as Graders that Graduate Students may apply for.

Finally, numerous part-time job opportunities exist on campus and outside. The fast-growing City of Lubbock allows for many part-time job opportunities in various fields.

## Doctoral Program

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All Ph.D. Students must maintain a cumulative GPA of 3.0 to stay in the program. Students are required to file a degree plan at the end of their first semester of attendance. Details for the degree plan are found on page 15.

Students are ultimately responsible for the completion of their degree. The graduate school outline of the major required steps for the Doctoral Degree is found on page 18. It is the responsibility of the student to make sure that all the steps are completed on time.

## Advisor

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The department Graduate Advisor will temporarily serve as the Faculty Advisor for each student during the student's first semester. Newly admitted students are required to meet with the department Graduate Advisor at the beginning of his/her first semester to create a degree plan. The degree plan is due at the end of your first semester.

Each long semester, all faculty members of the department will present in the Seminar course PETR 5121 (required for all students every semester) highlighting their research topics. Students will use these presentations to determine which faculty members would be the best fit for the student's research interests. The student will meet with at least 3 faculty members to discuss possible research topics for the student's dissertation. A document is provided in the Appendix to help with making this decision on page 19.

Each student will choose a primary Faculty Advisor, with the agreement of the faculty member, at the end of the first semester of attendance and report this advisor to the department Academic Coordinator. If a decision cannot be agreed upon, the Graduate Committee will find a suitable Advisor for the student. The Faculty Advisor will work with the student for the selection of a thesis, report, or dissertation topic.

Once a faculty member accepts the student as an advisee, a *Student-Advisor Commitment Form (PG 21)* must be signed by the student, the Faculty Advisor, and the Graduate Advisor. This form will be turned in the Graduate Academic Coordinator. **If the form is not on file, the student will not be granted permits to register for PETR 7000 or 8000 courses.**

If a change of Advisor is facilitated by either the student or current advisor, the Graduate Committee, current advisor, student, and new advisor must be informed, and a new *Student-Advisor Commitment Form* must be submitted.

## Dissertation Committee selection

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The dissertation committee should consist of at least three members in addition to the committee chair (faculty advisor). At least one of these two members should be a faculty member with a full-time appointment in the Petroleum Engineering Department. All of these committee members should hold a tenured or tenure-track faculty position at Texas Tech.

Occasionally, a dissertation committee could include an additional member from academia, industry or national laboratory. This additional committee member must hold a Ph.D. degree in engineering or science and should be approved by the Graduate Advisor and the Graduate



School. For this purpose, the dissertation committee chair (the faculty advisor) should provide a one paragraph justification for the need to select a committee member from outside of Texas Tech.

## COURSEWORK REQUIREMENTS

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Typically, students join the Ph.D. program after completing an MS degree in petroleum engineering. However, some students may be accepted in the program immediately after they finish their BS in petroleum engineering or equivalent. The requirements for both categories of students are the same except the course load is different. Students with a MS may transfer up to 24 credit hours from their previous degree to the Ph.D. All students will graduate with a total of 72 credit hours.

Students who join the Ph.D. program without an MS in petroleum engineering must complete a total of 48 credit hours. However, a maximum of 24 credit hours may be credited toward the total 48 hours as equivalent to their MS degree. These 24 credit hours should be transferred from the student's previous MS degree to their Ph.D. program. To avoid overlap between transferred courses and TTU courses, the student needs to specify the correspondence between the previously taken MS courses and the actual Ph.D. courses. The transferred courses need to be decided and justified with the ***approval of the graduate advisor and documented in the degree plan during the first semester of joining the department.***

A typical break-up of total minimum number of 72 credit hours of courses toward completing the degree plan should be as follows:

### STUDENTS WHO ARE ADMITTED WITH ONLY A BS

Core Courses:	18 credit hours (minimum)
Electives:	24 credit hours (minimum)
Research/7000:	18 credit hours (minimum)
Dissertation/8000:	12 credit hours (minimum)
Seminar courses:	Non-credit

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72 credit hours

## Courses:

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The curriculum is organized into four petroleum engineering courses that denote the teaching and research concentration of the faculty. Doctoral students are required to take 6 core courses. The doctoral degree plan should include at least one course in each core area. The remaining two required core courses may be from any of the below areas.

### Drilling Engineering:

- PETR 5303- Advanced Drilling Techniques
- PETR 5315- Horizontal Well Technology

### Production Engineering

- PETR 5316- Advanced Production Engineering
- PETR 5317- Well Completion and Stimulation

### Reservoir Engineering:

- PETR 5308- Pressure Transient Analysis
- PETR 5320- Advanced Reservoir Engineering

### Formation Evaluation:

- PETR 5304- Advanced Well Log Analysis
- PETR 5305- Advanced Formation Evaluation

Students are expected to attend the graduate seminar (PETR 5121) each semester. This is a **mandatory** one-hour non-credit course offered each long semester in the department.

Students should notify their graduate advisor **immediately** when receiving a grade of C, D, or F and before dropping a course, or when withdrawing from the university, to gain a full understanding of the implications and develop a plan for the future. See Graduate School section of catalog for academic standing rules. By the department policy, one C or lower in a course results in a Warning. One D or lower or two C's result in the student being placed on Probation. ***Any substitutions for courses must be approved by the Graduate Advisor and must be recorded through written means (email).***

**Core Courses:** As shown above, the curriculum is divided in to 4 areas of study with at least one core course for each area (may use transfer credits to fulfill this requirement) and an additional two core courses in the area of the student's choosing.

**Electives:** The remaining credit hours should be elective courses. Up to six (6) credit hours out of these may be non-petroleum graduate courses taken from the COE outside the PE department but in areas related to the student's research topics as determined in coordination with the dissertation committee chair.

Committee Chairs may make course recommendations for students outside of the department to further develop the student's skills in specific areas. ***These courses must be approved by the Academic Advisor in order to count toward degree plan elective hours.***

Course descriptions can be found on the online catalog  
<https://catalog.ttu.edu/content.php?catoid=9&navoid=987>

Core Area	Core MS level	Core PhD level
Reservoir Engineering	Advanced Reservoir Engineering PETR 5320 (Fall only)	Pressure Transient Analysis PETR 5308 (Spring only)
Production Engineering	Advanced Production Engineering PETR 5316 (Fall only)	Well Completion and Stimulation PETR 5317 (Spring only)
Drilling Engineering	Advanced Drilling Techniques PETR 5303 (Fall only)	Horizontal Well Techniques PETR 5315 (Spring only)
Formation Evaluation	Advanced Well Log Analysis PETR 5304 (Fall only) *Pre-req for PETR 5305	Advanced Form Evaluation PETR 5305 (Spring only)

Core Area	Elective Courses	Other Elective Courses
Reservoir Engineering	Hydrocarbon Reservoir Simulation PETR 5309	Advanced Simulation Techniques PETR 5310
	EOR PETR 5307	Waterflooding Techniques PETR 5325
	Advanced Phase Behavior PETR 5323	Thermal Oil Recovery PETR 5311
	Adv. Core Analysis PETR 5329	
Production Engineering	Gas Production Engineering PETR 5318	Multiphase Flow in Pipes PETR 5319
	Advanced Artificial Lift Methods PETR 5306	Nodal Analysis PETR 5314
Formation Evaluation	Geostatistics for Reservoir Engineering PETR 5324	Advanced Property Evaluation PETR 5328
Computational Modeling and Simulation	Numerical Application in Petroleum Engineering PETR 5313	Simulation of EOR Applications PETR 5312

Committee Chairs may make course recommendations for students outside of the department to further develop the student's skills in specific areas. ***These courses must be approved by the Academic Advisor in order to count toward degree plan elective hours.***

\*\*Please note that leveling courses PETR 5380-5385 will not count toward degree plan. Students who do not have a degree in petroleum engineering will be required to take leveling courses, however, these hours will not be applied toward the required 72 hours for the PhD \*\*

## PETR 7000 RESEARCH COURSES

Students are expected to register for the PETR 7000 research study courses after passing all qualifying examinations (QE) and no later than their proposal defense. The total number of PETR 7000 courses should not be less than 12 credit hours, 3 hours of which must be taken

during the same semester in which the research proposal is defended. No more than 18 hours of research may be applied to the student's degree plan.

*Students are REQUIRED to submit 1 abstract to a high impact journal each long semester they are enrolled in PETR 7000 in order to receive credit.*

## PETR 8000 DISSERTATION COURSES

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Students are expected to start registering for the PETR 8000 dissertation courses as soon as they defend their proposal. The total number of PETR 8000 courses should not be less than 12 credit hours, 3 of which must be taken during the same semester in which the dissertation is defended.

*Students are REQUIRED to submit 1 abstract to a high impact journal each long semester they are enrolled in PETR 8000 in order to receive credit.*

## Departmental Requirements

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Students are expected to participate in the seminar course PETR 5121. Students are **expected** to make a presentation prior to publications or dissertation proposals. The dates and topics of these presentations will be decided in coordination with their respective dissertation advisors.

All PHD Students must maintain a cumulative GPA of 3.0 to stay in the program. Students are required to file a degree plan at the end of their first semester of attendance. Details for the degree plan are found on page 14.

Students are **REQUIRED** to attend 2 research and/or writing workshops hosted by the graduate school or University. Please visit the Graduate School website for more information about workshops.

Students are ultimately responsible for the completion of their degree. The graduate school's outline of the major required steps for the Doctoral Degree is found on page 18. It is the responsibility of the student to make sure that all the steps are completed on time and in the appropriate manner.

**Students are required to have at least two publications with the cumulative rating of 8 or higher before their defense is scheduled.** Please see appendix with rating system and approved journals and conferences. This list is updated every semester, the rating you will qualify will be the rating the journal/conference had at the time of publication. Any exceptions must be obtained from the Graduate Committee.

## QUALIFYING EXAMINATION

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The guidelines for students sitting for the qualifying exam (QE) are as follows:

The qualifying exam is comprised of 4 sections consisting of reservoir engineering (RE), production engineering (PE), drilling engineering (DE), and formation evaluation (FE). Typically, the QE will be given over the course of two days with each of the sections lasting four hours.

A student who joins the graduate program with a BS in petroleum engineering is required to sit for the QE within a period of time **not exceeding 3 long semesters**. If the student does not sit for the QE within 3 long semesters of joining the program, this will result in an automatic FAIL.

A student who joins the graduate program with an MS in petroleum engineering is required to sit for the QE **within 2 long semesters**. If the student does not sit for the QE within 2 long semesters of joining the program, this will result in an automatic FAIL.

The QE will be offered twice a year, once in January and once in August.

Any Ph.D. Candidate who fails any section(s) of the QE during the first sitting is required to sit for the QE during the very next session offered in the department. The Candidate will be given the chance to retake the section(s) he or she failed and will not be required to take any sessions passed during the original QE. **If the student does not sit for the next offered QE this will result in an automatic FAIL (unless due to a University accepted excuse or excuse approved by the Graduate Program Committee).**

All Ph.D. candidates are given the chance to take the QE two times. **A candidate who fails any section twice will be removed from the doctorate program.**

A Ph.D candidate who successfully passes all four sections of the Qualifying Exam will be admitted officially in the doctorate program in the Bob L. Herd department of Petroleum Engineering at Texas Tech University and consequently will be allowed to register for the PETR 7000 course.

A Ph.D. candidate who successfully passes at least three sections will be admitted conditionally in the doctorate program in the Bob L. Herd Department of Petroleum Engineering at Texas Tech University and consequently will be allowed to register for the PETR 7000 course. The student **must** still pass the fourth Qualifying Exam the next time it is offered to stay in the program.

Exception to any of the items above must be **unanimously approved by the members of graduate committee.**

## PROPOSAL DEFENSE

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After the PhD student passes the QE he/she should present and defend a proposal for Doctoral Dissertation Research within a period of time not exceeding twelve months. The student should register for PETR 7000 while working on their research for the proposal.

The presentation and defense of the proposal is considered one of the most important milestones toward partial fulfillment of the requirements for the PhD degree.

It is the student's responsibility to provide the details to the Academic Coordinator at least two weeks prior, so a room may be booked. The defense of the proposal shall be conducted in the form of an Oral Examination to be held immediately after an approximately sixty-minute Public Presentation (seminar-like) on the proposal by the Doctoral Candidate.

The proposal will be evaluated by all of the Doctoral Candidate's Dissertation Committee members present at the Oral Examination using the *Petroleum Engineering Ph.D. Proposal Rubric* on page 23. The performance ratings received from Committee members will be used internally by the department for the Graduate Review and SACS (Southern Association of Colleges and Schools) Accreditation. The performance ratings received will NOT directly affect the students' proposal outcome.

The entire proposal is the sole responsibility of the Doctoral Candidate, from preparation through oral defense, reflecting the student's research capability, original idea(s), well documented reviews of publicly available published data and literature, research methodology, clear objective(s) and a plan with time-frame.

At the end of this Oral Examination, there will be a vote among the Doctoral Candidate's Dissertation Committee members. The following three options are possible:

- ***Unanimous vote in favor of the Doctoral Candidate.*** The Doctoral Candidate will pass without conditions. The student will be invited to resume/start her/his research work.
- ***Majority vote in favor but not unanimous.*** If the Doctoral Candidate passes his/her Oral Examination with a majority of votes in favor but not unanimous, the "objecting/dissenting" faculty have the right to put conditions, which shall be recorded before the Oral Examination session is over, and presented to the Doctoral Candidate by her/his Dissertation Committee chair. If the Doctoral Candidate chooses to continue with the same topic, the candidate will be required to comply with these conditions.
- ***Does not secure majority vote.*** If the Doctoral Candidate does not secure a majority vote, the student will be given another chance to prepare another proposal followed by Oral Examination thereof, to be completed within a period of time not exceeding six months. There will be no more than two chances to successfully defend the proposal.
  - In the case the Doctoral Candidate is not interested in submitting and defending another Doctoral Dissertation proposal, the candidate shall be considered as "**Failed**", and will be officially ejected from her/his status as a Doctoral Candidate. However, the student may be given the opportunity to obtain an MS degree instead, if admissible.

The PE Graduate Program Committee, chaired by the PE Graduate Advisor strongly recommends that the Doctoral Dissertation Committee should be constituted of at least 4 members among which at least one should be from outside the Bob L. Herd Department of Petroleum Engineering.

The PE Graduate Program Committee strongly recommends that the Dissertation Committee shall not be changed by replacing any existing member(s) once the first schedule of the proposal presentation is announced. The only exception to this rule could be the instance of a Dissertation Committee member's death, termination of services at TTU, or voluntary withdrawal. Otherwise, any change in Dissertation Committee must be approved by the PE Graduate Program Committee.

## DISSERTATION DEFENSE

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Directly after the student passes the proposal defense, the student will start working on their research toward completion of the doctoral program which culminate on the defense of their dissertation. Students who are actively working on their dissertation should register for PETR 8000.

The defense of the dissertation is organized in the form of a public presentation by the Ph.D. candidate of his/her work and findings followed by an Oral Examination (dissertation defense).

It is the student's responsibility to provide the details of the defense to the Academic Coordinator at least three weeks prior, so a room may be booked, and an advertisement can be created and put on the department monitors. It is the student's responsibly to coordinate with the committee to come up with a suitable time and location. The student is also responsible for choosing a Dean's Representative, who is an individual outside of the student's field of study who will sit in on the defense.

The defense shall be conducted in the form of an Oral Examination to be held immediately after an approximately sixty-minute Public Presentation (seminar-like) on the dissertation by the Doctoral Candidate.

The Dissertation Defense **will not be scheduled** until the student has at least two publications with the cumulative rating of 8 or higher. Please see appendix with rating system and approved journals and conferences. This list is updated every semester, the rating you will qualify will be the rating the journal/conference had at the time of publication. Any exceptions must be obtained from the Graduate Committee.

After a suitable date, time and location are selected by the student and committee members, the student is required to complete a Master's and Doctoral Defense Notification Form which is to be signed by the dissertation committee chair and co-chair (if applicable). The form will then be submitted to the Academic Coordinator at least 3 weeks before the defense.

This form is located on the TTU Graduate School website.

<http://www.depts.ttu.edu/gradschool/academic/FormsResources.php>

The Oral Defense of the dissertation shall be organized and conducted to materialize the following:

- a. The student will present their dissertation.
- b. Next, the audience including the students will ask a series of questions and certain questions and answers may be recorded at the discretion of the Advisor.
- c. The faculty will ask another series of questions and record the answers for further evaluation
- d. The Doctoral Candidate's Dissertation Committee will ask a round of questions to the candidate. The questions and answers shall be recorded simultaneously.

At the end of this Oral Examination the following should be done:

- a. Dissertation Committee Members will each complete the *Petroleum Engineering Dissertation Rubric* [page 23] for the purpose of the Graduate Review and SACS

(Southern Association of Colleges and Schools) Accreditation. The performance ratings received will NOT directly affect the students' Dissertation outcome.

- b. Doctoral Candidate's Dissertation Committee members will hold a vote regarding the student's Dissertation outcome.

The following three outcome options are possible:

- a. ***Unanimous vote in favor of the Doctoral Candidate.*** The Doctoral Candidate will pass without conditions.
- b. ***Majority vote in favor but not unanimous.*** If the Doctoral Candidate passes his/her Oral Examination with a majority of votes in favor but not unanimous, the "objecting/dissenting" faculty have the right to put conditions, which shall be recorded before the Oral Examination session is over, and presented to the Doctoral Candidate by her/his Dissertation Committee chair. If the Doctoral Candidate accepts the conditions, the candidate is required to implement them.
- c. ***If the Doctoral Candidate does not secure a majority vote,*** the student will be given another chance to prepare another proposal followed by Oral Examination thereof, to be completed within a period of time not exceeding six months.

In the voting process during the dissertation defense Oral Examination, each member of the Dissertation Committee as well as the chairman of the Dissertation Committee, will have an equal share of the vote.

## Degree Plan: Program for the Doctoral Degree and Admission to Candidacy Form

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A degree plan must be filled out at the end of the first semester after the student joins the program. This degree plan should specify the courses the students should take in order to graduate as well as the name of their advisor and committee members. For Ph.D. students with an MS in PE, the degree plan provides, justifies and documents the courses to be credited as equivalent to the MS program.

If the student decides to take different courses than what is in their original degree plan, change a committee member, or their research topic, they must submit a new degree plan with the updated information.

The curriculum is organized into four petroleum engineering core areas. Doctoral students are required to take two classes in each core area and all graduate students are **required** to attend PETR 5121 (Seminar) each semester that they are enrolled. A checklist of required courses is provided for your convenience on page 19.

Any substitutions for courses must be approved by the Graduate Advisor and must be recorded through written documentation (either a memo or an email in your file). If a Committee Chair suggests that a student take a class outside of the department, the Graduate Advisor must approve in order for the course to count toward the degree plan elective hours.

Degree plans must be approved and signed by the Graduate Advisor and submitted to the Academic Coordinator to be processed.



## Statement of Intention to Graduate Form

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A student planning to graduate must file a “Statement of Intention to Graduate” through the Graduate School. This must be completed at the beginning of the semester of intended graduation.

Form can be found on the Graduate School website:

<http://www.depts.ttu.edu/gradschool/academic/FormsResources.php>

A candidate who does not graduate at the expected time is required to file a new “Statement of Intention to Graduate” for any subsequent graduation and enroll in that semester.

# Appendix

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

R Number \_\_\_\_\_



**PETROLEUM ENGINEERING DOCTORAL CURRICULUM CHECKLIST**

**Doctoral students in Petroleum Engineering are required to fulfil 72 hours as follows:**

Students must take **SIX** core courses, at least one from each of the core areas listed below. (18 credit hours)

**(Drilling Engineering: PETR 5303, PETR 5315) (Reservoir Engineering: Peter 5308, PETR 5320)**

**(Production Eng: PETR 5316, PETR 5317) (Formation Evaluation: PETR 5304, PETR 5305)**

- |          |          |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

The remaining 8 courses will consist of elective courses. Courses that were used to satisfy the core requirements cannot be used again as an elective. (24 credit hours)

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Doctoral students are eligible to enroll in PETR 7000 or PETR 8000 only after passing all sections of the Qualifying Exam. (30 credit hours)

- Research PETR 7000:** 18 credit hours
- Dissertation PETR 8000:** 12 credit hours
- Seminar PETR 5121:** Students are required to attend the seminar EVERY semester.

**Publications: 1. Accepted Date:**

**2. Accepted Date:**

**Qualifying Exam:** Must take within first year of attendance. Students get two attempts.

Date: \_\_\_\_\_ Drilling: P/F Production: P/F Formation: P/F Reservoir: P/F

Date: \_\_\_\_\_ Drilling: P/F Production: P/F Formation: P/F Reservoir: P/F



## Steps Required for the DOCTORAL DEGREE

	<b>ACTION</b>	<b>INITIATED THROUGH</b>	<b>SUBMITTED TO</b>	<b>TIME</b>
1	Plan courses for degree	Graduate Advisor	Graduate Advisor	Prior to registration
2	Take preliminary exam (option)	Graduate Advisor	Graduate School Enrollment Management	Early in doctoral study, usually first semester of coursework
3	Set up doctoral advisory committee and title	Graduate Advisor	Graduate School Enrollment Management	Prior to filing doctoral degree plan
4	File "PROGRAM FOR THE DOCTORAL DEGREE" form	Graduate Advisor or Chair, Advisory Committee	Graduate School Enrollment Management	Before the end of first year of doctoral coursework
5	File changes in degree program, if necessary	Graduate Advisor or Chair, Advisory Committee	Graduate School Enrollment Management	As needed
6	Take Qualifying Examination for major and minor subjects.	Graduate Advisor or Chair, Advisory Committee	See step #7	After approval of doctoral program and completion of coursework
7	Recommendation for admission to candidacy (request by memo)	Chair of Committee	Graduate School Enrollment Management	After passing qualifying exam and no later than 4 months before graduation
8	Enroll in semester of graduation if all requirements are met (at least 3 hours)	Graduate Advisor or Chair, Advisory Committee	Registrar	Semester of graduation
9	File "STATEMENT OF INTENTION TO GRADUATE" form with official title of dissertation listed	Student	Graduate School Enrollment Management	Semester of graduation (One must be filed for each intended graduation semester.)
10	Pay the Thesis-Dissertation fee through Student Business Services	Graduate School Dissertation Supervisor	Student Business Services	Semester of graduation (This is paid only once.)
11	Schedule final oral defense of dissertation and submit DEFENSE NOTIFICATION FORM at least 3 weeks before defense	Student, Committee Chair, and Advisory Committee	Graduate School Dissertation Supervisor	At least 3 weeks before defense
12	Stand for final oral defense of dissertation	Advisory Committee	Graduate School Doctoral Coordinator	Semester of graduation
13	Submit signed ORAL DEFENSE and THESIS-DISSERTATION APPROVAL FORM and, after incorporating committee changes, submit .pdf file of dissertation to ETD site for review	Student, Advisory Committee	Graduate School Dissertation Supervisor	Semester of graduation (usually 5 weeks before graduation date)
14	Final grade for dissertation hours (A or B)	Committee Chair or Advisory Committee	Registrar-Final Grade Roll	End of semester
15	Submit final .pdf of dissertation to ETD web site (DMA students submit PDF programs to ETD site and turn CDs in to the Graduate School)	Student	Graduate School Dissertation Supervisor	Prior to deadline
16	Complete Doctoral Survey	Student	<a href="http://survey.norc.uchicago.edu/doctorate">http://survey.norc.uchicago.edu/doctorate</a>	Before graduation

Student-Advisor Commitment Form

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

Faculty Committee Advisor\*: \_\_\_\_\_

Circle Current Degree Program:     **Ph.D.**     **M.S.**

Date Joined the Department: \_\_\_\_\_

Student's Area of Interest: \_\_\_\_\_

*The individuals listed above agree that they shall work together as Student and Committee Advisor on the student's Report/Thesis/Dissertation. By signing this form, both the faculty member and student are agreeing to work together until the completion of the student's Report/Thesis/Dissertation. If either the faculty member or student no longer wish to continue working together as Student and Committee Advisor for any reason, no change in advisor may be made unless approved by the Graduate Program Committee.*

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**Student Name (print)**  
**Date**

**Student Signature**

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**Committee Advisor Name\* (Print)**  
**Date**

**Committee Advisor Signature\***

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**Graduate Program Representative Name (print)**  
**Date**

**Graduate Program Representative Signature**

***\*Faculty selected by student and Graduate Program Committee who will serve as student's personal advisor during the completion of their final project including Report, Thesis or Dissertation.***

Petroleum Engineering Ph.D. Proposal Rubric  
2017-2018

Candidate Name: \_\_\_\_\_

Title of Proposal: \_\_\_\_\_

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

Category	Performance Ratings					Score
	Exceptional	Above Average	Average	Below Average	Very Poor	
	5	4	3	2	1	
<b>I. Level of Complexity:</b> Will the result of this proposed study have the potential of a significant impact on society or the profession?						
<b>II. Quality of Written Communication:</b> Communicates research theory, methodology and results clearly.						
<b>III. Quality of Oral Communication:</b> Communicates research theory, methodology and results clearly.						
<b>IV. Critical Thinking:</b> Originality of the proposed work.						
<b>V. Planning:</b> Includes specific time line for both research and publications and budget required for research.						
Total Score:						
Average Score:						

Name of Committee Member: \_\_\_\_\_

Signature of Committee Member: \_\_\_\_\_

Petroleum Engineering Dissertation Rubric  
2017-2018

Candidate Name: \_\_\_\_\_

Title of Dissertation: \_\_\_\_\_

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

Category	Performance Ratings					Score
	Exceptional	Above Average	Average	Below Average	Very Poor	
	5	4	3	2	1	
<b>I. Quality of Oral Communication:</b> Communicates research theory, methodology and results clearly.						
<b>II. Quality of Written Dissertation:</b> Communicates research theory, methodology and results clearly.						
<b>III. Relevance:</b> Technical contribution of the research completed.						
<b>IV. Results:</b> Analyzed and interpreted.						
<b>V. Publications:</b> Professional publication(s) resulted/expected or patent(s) filed prior to dissertation. (Patent=1.5 publications.)	(4+ pub.)	(3 pub.)	(2 pub.)	(1 pub.)	(0 pub.)	
Total Score:						
Average Score:						

Name of Committee Member: \_\_\_\_\_

Signature of Committee Member: \_\_\_\_\_

## PUBLICATION RATING SYSTEM

Ranking	Journal Title	Impact Factor	Rating
1	Carbon	7.466	5
2	Composites Part B: Engineering	6.864	
3	Cement and Concrete Research	5.618	
4	Fuel	5.128	
5	Composite Structures	4.829	
6	Water Resources Research	4.36	
7	Construction and Building Materials	4.046	
8	Journal of Natural Gas Science and Engineering	3.859	
9	International Journal of Rock Mechanics and Mining Science	3.78	
10	Advances in Water Resources	3.673	
11	Polymer Sciences	3.245	
12	International Journal of Greenhouse Gas Control	3.231	
13	Energy Technology	3.175	
14	Energy & Fuels	3.021	
15	Journal of Petroleum Science and Engineering	2.886	
16	Energies	2.707	
17	Geophysics	2.391	
18	Computational Geosciences	2.108	
19	Petroleum Exploration and Development	2.065	
21	Transport in Porous Media	1.997	4
22	SPE Reservoir Evaluation & Engineering	1.94	
23	Oil & Gas Science and Technology-Revue d IFP Energies nouvelles	1.867	
24	Petroleum Science	1.846	
25	Petroleum Geoscience	1.415	
26	Asia-Pacific Journal of Chemical Engineering	1.396	
27	Journal of Petroleum Exploration and Production Technology	1.38	
28	SPE Production & Operations	1.162	
29	SPE Journal	1.03	
30	Petroleum Science and Technology	0.981	3
31	Petrophysics	0.96	
32	Petroleum Chemistry	0.932	
33	Oil Shale	0.854	
34	SPE Drilling & Completion	0.76	
35	Journal of the Japan Petroleum Institute	0.631	
36	International Journal of Oil Gas and Coal Technology	0.563	
37	Energy Procedia	0.49	2
38	SPE Economics and Management	0.456	
39	Chemistry and Technology of Fuels and Oils	0.36	
40	China Petroleum Processing & Petrochemical Technology	0.325	
41	Oil Gase-European Magazine	0.321	
42	CT&F-Ciencia Tecnologia y Futuro	0.241	
43	Journal of Petroleum Technology (JPT)	0.192	
44	Oil & Gas Journal	0.12	
45	International Journal of Petroleum Engineering	0	1
46	Journal of Offshore Structure and Technology	0	
47	Journal of Petroleum Science Research	0	
48	Petroleum	0	
49	Petroleum Environmental Biotechnology	0	
50	Advances in Petroleum Exploration and Development	0	
51	Hydraulic Fracturing Quaterly (HFQ)/ Hydraulic Fracturing Journal	0	
52	Special Oil & Gas Reservoirs	0	
53	The American Oil & Gas Reporter	0	
54	Abstracts of Papers of the American Chemical Society	0	
55	Upstream Pumping Solutions	0	
56	Journal of Petroleum Engineering & Technology	0	
57	International Research Journal of Electronics & communication Engineering	0	



5/6/16 (replaces 6/16/06 edition)]



TEXAS TECH UNIVERSITY™

## Operating Policy and Procedure

OP 64.02: **Graduate Enrollment Policy DATE:** May 6, 2016

**PURPOSE:** The purpose of this Operating Policy/Procedure (OP) is to ensure that graduate enrollment corresponds closely with the use of faculty time and other university resources.

**REVIEW:** This OP will be reviewed in March of even-numbered years by the dean of the Graduate School and the Graduate Council with substantive revisions forwarded to the provost and senior vice president.

### **POLICY/PROCEDURE**

#### **1. Full-time Study**

Normal full-time enrollment varies between 9 and 13 hours for doctoral students and between 9 and 16 hours for other graduate students in the regular semester period. Full-time enrollment in a summer session is from 3 to 6 hours. During a regular semester, more than 13 hours for a doctoral student or 16 hours for other graduate students requires special permission of the graduate dean. As of September 1, 2000, students with 130 + doctoral hours will pay out-of-state tuition regardless of residency status.

Students must be enrolled full time (at least 9 hours in each long term, 3 hours in each relevant summer session) to be eligible to hold fellowships, teaching assistantships, graduate part-time instructorships, research assistantships, or other appointments designed for the support of graduate study, as well as to qualify for certain types of financial aid. All international students are required by law to have full-time enrollment in every long semester. Graduate students designated **PGRD** (those who have earned an undergraduate degree but who will take only undergraduate courses) may not be appointed to teaching assistantships, graduate part-time instructorships, or research assistantships, as noted in the *Undergraduate/Graduate Catalog*.

If a student is devoting full time to research, utilizing university facilities and faculty time, the schedule should reflect at least 9 hours enrollment (at least 3 hours in each summer session). Enrollment may include research, individual study, thesis, or dissertation.

Exceptions to full-time enrollment for employment purposes require approval by the graduate dean.

## **2. Continuous Enrollment**

Each student who has begun thesis or dissertation research must register in each regular semester and at least once each summer until the degree has been completed, unless granted an

official leave of absence from the program for medical or other exceptional reasons. At least 6 hours of 6000 or 12 hours of 8000 constitute minimum requirements. Off-campus students may register for 1 hour of 6000 or 8000 with departmental approval until their final semester, at which time they must enroll in at least 3 hours.

## **3. Doctoral Residence**

Each student fulfilling the doctoral residence requirements will enroll for at least 24 hours in one calendar year. The dean of the Graduate School must approve in advance any other pattern of enrollment to meet the doctoral residence requirement. Students holding half-time assistantships or graduate part-time instructorships may satisfy the requirement by taking at least 9 hours in each long term and 6 hours in the summer. Students who are employed full time, and for whom completion of 24 hours in one calendar year would constitute unreasonable hardship, may submit proposals for consideration of alternate patterns of enrollment to complete the residence requirement with departmental support.

## **4. Other Considerations**

Courses beyond the minimal requirements, including research and appropriate special studies courses, strengthen student programs and provide greater depth and specialization but should be carefully planned in order not to push the student beyond the maximum fundable hours. The Southern Association of Colleges & Schools (SACS) states that "a program leading to a doctor's degree is normally the equivalent of at least three years of full-time graduate study" and "must require a period of residency after admission to the doctoral program," as well as "appropriate and regular means for determining candidacy and the fulfillment of degree requirements." Departments should strive for compliance with both the SACS requirements and the state's maximum limit on fundable doctoral hours while providing the most strength and depth possible for the student within these limits.



TEXAS TECH UNIVERSITY

## Operating Policy and Procedure

OP 64.04: **Academic Probation and Suspension of Graduate Students** DATE: October 24, 2016

**PURPOSE:** This Operating Policy/Procedure (OP) is intended to define the academic requirements for continuation of graduate study.

**REVIEW:** This OP will be reviewed in September of even-numbered years by the Dean of the Graduate School with substantive revisions forwarded to the Graduate Council and the Provost and Senior Vice President.

### **POLICY/PROCEDURE**

5. Every student enrolled in the Graduate School, whether working toward a degree or not, is required to maintain a high level of performance and to comply fully with policies of the institution. The Graduate School reserves the right to place on probation or to suspend any post- baccalaureate or graduate student who does not maintain satisfactory academic standing or who fails to conform to the regulations of the university.
  - Students who are admitted to the Graduate School or to a degree program on condition of maintaining a required GPA are automatically on academic notice. Failure to fulfill the conditions stipulated at the time of admission will result in termination from the program.
  - If a student's cumulative GPA falls below 3.0, he/she is placed on academic probation. At this time, the student has two consecutive semesters to raise his/her cumulative GPA to at least 3.0. If his/her semester GPA drops below 3.0 during this two semester period, the student is subject to suspension. A student placed on suspension will be required to remain out of Graduate School for one

semester. If a student is suspended two times he/she will not be allowed to return to Graduate School. Any student who has been suspended must appeal to the Graduate School, according to OP 64.07, if reinstatement is desired.

- Summer sessions and/or trimester count as one semester.
6. Academic departments or programs may apply standards for probation and suspension higher than those established by the Graduate School. Such standards are to be approved by the Graduate School, and actions based thereon are to be recommended by the department to the graduate Dean.
  7. Students may be suspended for unprofessional conduct such as cheating or plagiarism. Any appeal of such action is subject to the provisions of the Code of Student Conduct. See the *Student Handbook* for further information.

OP 64.04



**OP 64.07: Graduate Student Appeals**

**DATE:** April 7, 2014

**PURPOSE:** The purpose of this Operating Policy/Procedure (OP) is to outline the disposition of cases involving graduate student appeals.

**REVIEW:** This Operating Policy/Procedure (OP) will be reviewed in October of odd-numbered years by the dean of the Graduate School with substantive revisions forwarded to the senior vice provost and the provost and senior vice president (PSVP).

**POLICY/PROCEDURE**

8. This policy applies to specific grievances arising from matters affecting students' academic standing and performance, other than admission to the Graduate School (see OP 64.01) and academic dishonesty (see the *Code of Student Conduct*). Such matters include, but are not limited to, disputes concerning comprehensive and qualifying examinations, theses and dissertations, academic probation and suspension, publications, and graduate assistantships. Appeals, other than probation and suspension, may be made only when alleged prejudice or arbitrary or capricious action is involved. Appeals of course grades are made through the dean of the college in which the course is offered and, therefore, are excluded from consideration in this OP.
9. The burden of proof of unfair influence or action rests with the student.
10. A student wishing to appeal a decision or action first should discuss the matter with the faculty member or members involved.
11. If not satisfied with the outcome of this effort, the student should contact the chairperson of the department concerned. This contact, like that with the faculty members, normally is informal, and the department chairperson may take whatever action is deemed advisable in attempting to resolve the issue. All parties involved should make every effort to resolve the issue without going beyond this level.
12. If still not satisfied following these meetings and discussions, the student may make a written formal appeal to the Office of the Dean of the Graduate School. The appeal must include supporting information that details specifically all aspects of the student's grievance.
13. The dean of the Graduate School may first convene an informal committee of at least two associate deans to evaluate the information and seek further information from the academic department involved. The dean may render a decision on the basis of this investigation and evaluation or may choose to defer a decision until the case has been considered by a hearing committee (normally the Student Affairs Committee of the Graduate Council). Ordinarily, this committee will meet only in the fall and spring semesters, due to the difficulty of securing relevant participants in the summer months.

14. If an appeals committee is convened, it will examine the evidence and hold what hearings and meetings it deems necessary to make a recommendation in the case. It is not necessary for the parties to appear unless requested by the committee, but parties have the right to appear if they wish to do so. The dean of the Graduate School may attend meetings of the appeals committee but will not be present during the committee's deliberation of its final recommendation. Members of the committee who have professional or personal relationships with either party in a dispute that would create a hindrance to objective judgment or a conflict of interest must withdraw themselves or be recused from the committee. The dean will name a replacement. After appropriate deliberation, the committee will make its recommendation to the graduate dean.
15. Taking into account the recommendation of the appeals committee (if convened), the dean of the Graduate School will make a decision on the appeal, which will be sent in writing to the student, the department involved, and the chairperson of the appeals committee.
16. Appeal of the dean's decision may be made in writing, with evidence and history provided to the Office of the PSVP either by the student or by the faculty member(s) involved.
17. If an appeal is made to the office of the PSVP, the PSVP or designee will determine whether to hear the appeal. If the appeal is heard, the office of the PSVP will render a decision on the basis of the evidence and history provided. The decision will be sent in writing to the student, the department involved, the chairperson of the appeals committee, and the dean of the Graduate School. The decision of the office of the PSVP will be considered the final disposition of the case, without any further appeal at Texas Tech University.