Petroleum and Natural Gas Engineering, Ph.D.

Curriculum in Doctor of Philosophy - Petroleum and Natural Gas Engineering

A candidate for the Ph.D. degree with a major in petroleum and natural gas engineering must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Petroleum and Natural Gas Engineering Department.

Program Requirements

The Doctor of Philosophy degree with a major in petroleum and natural gas engineering is administered through the college's interdisciplinary Ph.D. program. The research work for the doctoral dissertation must show a high degree of originality on the part of the student and must constitute an original contribution to the art and science of petroleum and natural gas engineering.

All Ph.D. degree candidates are required to perform research and follow a planned program of study. The student's research advisor, in conjunction with the student's Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student's needs. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their career.

Curriculum Requirements (BS-PhD Pathway)

Code	Title	Hours
A minimum cumulative GPA of 3.0 is required in all courses		
A maximum of three credit hours each of Graduate Seminar (PNGE 796) and Independent Study (PNGE 795) can be counted towards meeting the coursework requirements.		
Course Requirements		
Any PNGE couses 500-795		18
Select the following:		
Any BIOM, BMEG, CE, CHE, CHEM, CPE, CS, EE, GEOL, IENG, IH&S, MAE, MATH, MINE, PNGE, PHYS, SAFM, SENG, or STAT courses 500-795, as approved by the student's AEC		15
Graduate Seminar **		3
PNGE 796	Graduate Seminar	
Research		24
PNGE 797	Research	
Examinations		
Plan of Study		
Qualifying Exam		
Candidacy Exam		
Final Exam		
Dissertation		
Total Hours		**60**

** All students are required to take Graduate Seminar (PNGE 796) for each semester enrolled.

Curriculum Requirements (MS-PhD Pathway)

Code	Title	Hours
A minimum cumulative GPA of 3.0 is required in all courses		
A maximum of three credit hours each of Graduate Seminar (PNGE 796) and Independent Study (PNGE 795) can be counted towards meeting the coursework requirements.		
Course Requirements		
Any PNGE courses 500-795		9
Select the following:		
Any BIOM, BMEG, CE, CHE, CHEM, CPE, CS, EE, GEOL, IENG, IH&S, MAE, MATH, MINE, PNGE, PHYS, SAFM, SENG, or STAT courses 500-795, as approved by the student's AEC		9
Graduate Seminar **		3
PNGE 796	Graduate Seminar	

Research		24
PNGE 797	Research	
Examinations		
Plan of Study		
Qualifying Exam		
Candidacy Exam		
Final Exam		
Dissertation		
Total Hours		**45**

Examinations

QUALIFYING EXAM

All students must take and pass a written qualifying examination. Normally, the qualifying examination is given no later than one semester after completion of eighteen credit hours toward the doctoral degree. This examination is designed to assess the basic competency of students in the petroleum and natural gas engineering field to determine whether or not they have sufficient knowledge to undertake independent research.

CANDIDACY EXAMINATION

In order to be admitted to candidacy, the student must pass a candidacy exam, which is designed to evaluate the student's overall ability to engage in high-level research. A student must pass the qualifying examination prior to taking Candidacy Exam. The Candidacy Exam is administered by the student's AEC and requires preparation and defense of the dissertation research proposal. The Candidacy Exam may also include testing on material in related fields, as deemed necessary by the AEC.

A student who has successfully completed all coursework, passed the qualifying and candidacy exam and successfully defended the research proposal is defined as one who is a candidate for the Ph.D. degree.

FINAL EXAMINATION

At the completion of the dissertation research, candidate must prepare a dissertation and pass the final oral examination (defense) administered by his/her AEC.

In order to complete the Ph.D. requirements, a student must pass a final oral examination on the results embodied in the dissertation. This examination is open to the public and, in order to evaluate critically the student's competency, may include testing on material in related fields, as deemed necessary by the AEC. In addition, since the Ph.D. degree is primarily a research degree that embodies the results of an original research work and represents a significant contribution to scientific literature, the student must submit a manuscript on this research to the AEC.

Admissions for 2027-2028

MASTER ADMISSIONS

To be eligible for admission into the Master of Science in Petroleum and Natural Gas Engineering degree program, a candidate must fulfill the following requirements:

- B.S. degree in engineering from an ABET-accredited or internationally-recognized engineering program or equivalent with a minimum GPA of 3.0 (on a 4.0 scale).
- A statement of purpose.
- At least three recommendation letters (one letter must be from the applicant's academic advisor or equivalent).
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

DOCTORAL ADMISSIONS

To be eligible for admission into the doctoral program, a candidate must fulfill the following requirements:

- Degree in petroleum engineering from an ABET-accredited or an internationally-recognized petroleum engineering program, with a minimum GPA in a B.S. program of 3.0/4.0 or an M.S. program of 3.2/4.0.
- A statement of purpose.
- At least three recommendation letters (one letter must be from the applicant's previous thesis advisor or an academic equivalent).
- All applicants for the doctoral program must submit GRE scores, and score in at least the seventy-fifth percentile (75%) on the quantitative section.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

DIRECT-TRACK BS-PHD ADMISSIONS

To be eligible for admission into the doctoral program, a candidate must fulfill the following requirements:

- Degree in petroleum engineering from an ABET-accredited or an internationally-recognized petroleum engineering program, with a minimum GPA in a B.S. program of 3.2/4.0.
- A statement of purpose.
- At least three recommendation letters (one letter must be from the applicant's previous thesis advisor or an academic equivalent).
- All applicants for the doctoral program must submit GRE scores, and score in at least the seventy-fifth percentile (75%) on the quantitative section.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

MSPNGE Major Code: 3075

PhD Major Code: 3076

Degree Progress

The Department of Petroleum and Natural Gas Engineering requires the following milestones for all doctoral students. According to the graduate catalog, students will receive a yearly evaluation. This requirement may be waived for students in good standing who are expected to graduate in within the next semester.

Students who are either not making adequate degree progress or who are failing to uphold professional standards may receive notice of probation, suspension or dismissal. Students may be notified of academic consequences outside of routine evaluation processes if an issue must be addressed immediately.

Each year, no later than the first day of classes of the Fall semester, the department will distribute an updated version of the graduate handbook.

BENCHMARKS

- Year One:
  - Submit a Preliminary Plan of Study to Department (graduate coordinator or program assistant)
- Year Two:
  - Complete Qualifying Exam
- Year Three+:
  - Complete the Candidacy Exam
  - Submit Admission to Candidacy for the PhD form with Intermediate Plan of Study to Statler Student Services

After admission to Candidacy, students must maintain enrollment in the fall and spring terms and must defend within five years.

- Final Semester:
  - Apply to Graduate (Registrar Form)
  - Submit Final Plan of Study, Request for Final Defense, and Abstract three weeks prior to defense date.
  - Prepare ETD by deadline (http://etd.lib.wvu.edu/) (See for dates and document formatting)
- Additional Requirements:
  - All students must enroll in the Graduate Seminar course (PNGE 796) each semester.

SATISFACTORY PROGRESS

- Maintain a 3.0 GPA in all coursework.
- Students must earn a grade of Satisfactory in the research course.

More information on policies regarding student progress can be found on the Statler College Policies page (http://catalog.wvu.edu/graduate/collegeofengineeringandmineralresources/#masterstext).

Major Learning Outcomes

PETROLEUM AND NATURAL GAS ENGINEERING

- Graduates will have in-depth knowledge of petroleum and natural gas engineering principles and applications to function effectively in their profession or continue their education.
- Graduates will have the ability to perform independent research to solve engineering and scientific problems encountered in their profession.
- Graduates will have in-depth petroleum and natural gas scientific and engineering knowledge to provide high quality education in petroleum and natural gas engineering.