



# PETROLEUM ENGINEERING

## Graduate Programs

### PROGRAM OVERVIEW

The Craft & Hawkins Department of Petroleum Engineering offers both a Master of Science in Petroleum Engineering and a Doctor of Philosophy in Petroleum Engineering. There is a minimum core requirement of credit hours—18 for the MS and 21 for the PhD—in drilling, production, formation evaluation, reservoir engineering, and engineering mathematics, as shown in the department’s Core Curriculum Requirements document. A secondary concentration area consisting of a six-hours-minimum of earned credit in a specified field of study may be required by the advisory committee.

### DEGREES OFFERED

#### MS in Petroleum Engineering

The MS program is open to students holding degrees in petroleum engineering, other engineering disciplines, or science. It has two options—thesis or non-thesis requiring a special project. The department-level academic course plan for each student will be developed in consultation with and approved by the graduate advisor and student’s advisory committee.

- The thesis option requires completion of 24 hours of approved coursework—12 coursework-hours should be at the 7000 level or above (excluding thesis hours) and six hours of credit for thesis research. Students must have their thesis approved by the committee and pass a comprehensive oral exam.
- The non-thesis option requires completion of 36 hours of approved graduate coursework that may include three credits for the special project and at least 18 hours at the 7000 level or above, including credit earned for the special project. Students must pass a comprehensive oral exam after completion of the special project. At the discretion of the student’s advisory committee, a written exam may be required.

#### PhD in Petroleum Engineering

This degree is open to students holding an MS in petroleum engineering. However, special programs involving additional coursework can be developed for those with MS degrees in related branches of engineering science.

To become a doctoral candidate, a student must pass a qualifying exam, meet the one-year residence requirement, and complete a minimum of either 54 semester hours of approved coursework beyond the BS or 30 semester hours beyond the MS. A minor is not required for doctoral students, and the department recognizes the value of taking courses outside of the curriculum to augment a student’s research and/or expand a student’s knowledge in other areas. Therefore, a doctoral student in petroleum engineering must meet at least one of the following requirements:

- Acquire an approved minor or take 9-12 semester hours of courses outside of the department. Courses must be selected by both the student and his/her major professor and approved by the graduate advisor and department’s graduate faculty. Courses must also represent a logical and cohesive package that satisfies one or both of the previously mentioned goals.
- The PhD is conferred after a candidate has successfully completed the dissertation and passed the general and final exams.

#### GRADUATE ADVISOR

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#### ADMINISTRATIVE COORDINATOR

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## FACULTY RESEARCH AREAS

### **Babak Akbari**

[babak@lsu.edu](mailto:babak@lsu.edu) — drilling engineering, managed pressure drilling, plugging and abandonment, drill bits, geomechanics

### **Mauricio Almeida**

[malmeida@lsu.edu](mailto:malmeida@lsu.edu) — drilling engineering, MPD/DGD, well control and blowout prevention, deepwater drilling/completion

### **Yuanhang Chen**

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### **Ipsita Gupta**

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### **Richard Hughes**

[rgHughes@lsu.edu](mailto:rgHughes@lsu.edu) — oil and gas reservoir engineering, CO<sub>2</sub> EOR and sequestration, production data analysis, pore-scale processes

### **Seung Ihl Kam**

[kam@lsu.edu](mailto:kam@lsu.edu) — multiphase flow in pipes and porous media, EOR applications, modeling/simulation, flow experiments

### **Olufemi Ololode**

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### **Dandina Rao**

[dnrao@lsu.edu](mailto:dnrao@lsu.edu) — reservoir engineering, enhanced/improved oil recovery, fluid-fluid and rock-fluid interactions

### **Jyotsna Sharma**

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### **Karsten Thompson**

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### **Mayank Tyagi**

[mtyagi@lsu.edu](mailto:mtyagi@lsu.edu) — high-performance CFD modeling, fluid flow and heat transfer, geothermal energy systems, upscaling algorithms

### **Paulo Waltrich**

[waltrich@lsu.edu](mailto:waltrich@lsu.edu) — multiphase flows in pipes, artificial lift systems, liquid loading production optimization, flow assurance

### **Wesley Williams**

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### **Andrew Wojtanowicz**

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### **Mehdi Zeidouni**

[zeidouni@lsu.edu](mailto:zeidouni@lsu.edu) — flow in porous media, CO<sub>2</sub> storage/EOR, shale oil and gas, inverse theory to flow-based problems