application of acoustics in the study and assessment of living marine resources.

4550 Biogeography (3) S: Prereq.: two- or three-semester undergraduate course sequence above 2000 level, or graduate student status in science department. Participation in oceanography methods required. Basic knowledge of open ocean, continental shelves, and large river deltas.

4560 Wetland Loss, Restoration, and Management (3) Prereq.: two courses above the 1000 level. Participation in field trips to local wetlands and management agencies is required. Coastal wetland loss, restoration, and management of coastal wetlands values, use, and potential management issues.

4565 Restoration Ecology/Ecological Restoration (3) Prereq.: two courses above the 1000 level. Participation in field trips to local wetlands and management agencies is required. Coastal wetland loss, restoration, and management of coastal wetlands values, use, and potential management issues.

4600 Global Environmental Change: Past, Present, and Future (3) Also offered as ENVS 4600. Patterns and processes of global changes in climate during the Quaternary and their links to the biosphere, cryosphere, and oceans; proxies and archives; climate forcing and biotic responses; current warming and future impacts; human ecology of climate change; energy supply and human health; sustainability and policy.

4666 Coastal Field Geology (4) Su only offered GEOL 4666.

7001 Advanced Introduction to Scientific Research (1) V May be taken for a max. of 9 sem. hrs. when topics vary.

7028 Numerical Modeling of Ocean Circulation (3) V Prereq.: OCS 4170. Advanced introduction to scientific research (1) V May be taken for a max. of 9 sem. hrs. when topics vary.

7105 Oceanography and Coastal Sciences (3) S: Prereq.: OCS 4170. Advanced introduction to scientific research (1) V May be taken for a max. of 9 sem. hrs. when topics vary.
Histopathology Slide Conference (1) F Prereq.: 3 credits. Histopathological interpretation of tissues for purposes of diagnosis. 

1010 Introduction to Petroleum Engineering (2) F Prereq.: MATH 1012. Scientific bases of petroleum geology and chemistry, exploration, drilling, production, reservoir engineering, and refining.

2031 Reservoir Rock Properties (3) F Prereq.: MATH 1532, GEOI 1001 and PHYS 2101. Physical properties of reservoir rock; application of fluid flow in production of oil and gas.

2032 Reservoir Fluid Properties (3) F Prereq.: credit or registration in PHYS 2102. Physical and chemical properties of reservoir fluids related to production of oil and gas.

2034 Rock and Fluid Properties Laboratory (1) S Prereq.: credit in PHYS 2102 and/or 2032, and registration in the other course. 3 hrs. lab.

2600 Computational Methods in Petroleum Engineering (2) F Prereq.: MATH 1552, 1 hr. lecture-2 hrs. lab. Computer-aided petroleum engineering design, simulation tools, and database management.

2602 Communicating Petroleum Engineering Technology (3) V Prereq.: ENGL 2000, junior standing in the College of Engineering, and permission of department. Communication skills for the petroleum engineer, including technical writing, public speaking, oral and written communication, and computer usage applied to petroleum engineering topics.

3075 Economic Aspects of Petroleum Production (3) F Prereq.: ECON 2203, PETE 2060, and credit in register in IE 3032. Mineral ownership and leasing in Louisiana; production decline curve analysis; profitability analysis; risk analysis; and optimization of production systems.

3086 Well Logging (3) F Prereq.: grade of "C" or better in PETE 2031, and either MATH 2250 or PHYS 2102 and credit or registration in IE 2200. Quantitative and qualitative formation evaluation by means of electric, acoustic, and radioactivity logs.

3087 Petroleum Field Operations (1) F Prereq.: permission of department; 3 hrs. lab. Field operations associated with production engineering; field equipment and operation; pneumatic and electronic safety systems; fluid flow measurements.

3053 Petroleum Engineering Aspects of Subsurface Geology (3) F Prereq.: PETE 2032 and 3036: senior status in geology. Engineering aspects of petroleum geology; interpretation of subsurface data; reservoir mapping; determination of reservoir performance; and related topics. 

3990 Independent Research (1-4) F,S Su Prereq.: May be taken for a maximum of 3 hrs. of credit. Each independent research project will be stated at time of registration. Individual research or engineering studies with faculty supervision.

4045 Drilling Engineering (3) F Prereq.: PETE 4040, CE 2200 and credit or registration in CE 3400. Drilling process, including equipment and performance; well control and procedures; circulation pressure, and optimum hydraulics of drilling fluids; oil well casing design and cementing techniques.

4046 Well Design and Production (3) S Prereq.: PETE 4045, CE 2450 or M3 313, and CE 3400. Analysis and design of well production systems; mud pumping, gas lift.

4050 Reservoir Dynamics (3) S Prereq.: PETE 2024, ME 3333 and MATH 2065. Fundamentals of reservoir flow behavior; single well performance; test design and analysis of field performance.

4051 Reservoir Erosion and Reservoir Management (3) F Prereq.: PETE 3025, 3033, and IE 3302. Quantitative study and behavior prediction of volumetric and water-drive reservoir systems, and digital simulation methods.

4056 Numerical Simulation of Improved Recovery Processes (3) S Prereq.: MATH 2065, and PETE 4050 and 4053. Use of computer applications for reservoir oil and gas reservoir performance and to design enhanced recovery processes.

4059 Reservoir Mechanics Laboratory (1) S Prereq.: PETE 4051. 3 hrs. lab. Simulation of reservoirs with physical models; fluid flow in porous media.

4069 Drilling Fluids Laboratory (1) F Prereq.: credit or registration in PETE 4054. 3 hrs. lab. Accompany PETE 4051. 

4095 Surface Handling of Produced Fluids (3) V Prereq.: PETE 3023 and 2034. Operating principles and design criteria for equipment used in field processing of oil and gas, e.g., oil, gas, gas/condensate, and water; production and performance of separator units.

4096 Prevention of Oil and Gas Well Blowouts (1) S Prereq.: CE 2200. 3 hrs. lab. Causes and detection of well kicks and the proper handling of these kicks to prevent uncontrolled flow (blowout) from the well; methods and techniques currently used in the oil and gas industry.


4085 Surface Handling of Produced Fluids (3) V Prereq.: PETE 3023 and 2034. Operating principles and design criteria for equipment used in field processing of oil and gas, e.g., oil, gas, gas/condensate, and water; production and performance of separator units.

4095 Surface Handling of Produced Fluids (3) V Prereq.: PETE 3023 and 2034. Operating principles and design criteria for equipment used in field processing of oil and gas, e.g., oil, gas, gas/condensate, and water; production and performance of separator units.

4088 Formation Evaluation (3) V Prereq.: PETE 3036. Use of different formation evaluation techniques to provide a comprehensive description of reservoir content productivity; drilling fluid and cutting analysis; core analysis; formation tester; drill-stem test; analysis of openhole logs by overlay, crossplot, and digital evaluation methods.

4099 Natural Gas Engineering (3) F Prereq.: G 4050. Application of reservoir engineering principles and practices to gas and condensate reservoirs; prediction of gas well performance; management of all types of gas reservoirs; underground gas storage.

4241 Special Topics in Petroleum Engineering (3) Prereq.: senior or graduate standing and permission of instructor. May be taken for a maximum of 6 hrs. credit when topics vary. One or more titles may be offered during the semester.

4999 Senior Project (1-6) S Prereq.: senior standing in the College of Engineering, ENG 2000. Oral and written presentation required. First phase of theoretical and/or experimental investigations of an approved topic in petroleum engineering.

4999 Senior Project (II) (1, 6) S Prereq.: 4998 and senior standing in the College of Engineering. Written and oral presentation of experimental investigation, including a literature review, of an approved topic in petroleum engineering.

7195 Reservoir Characterization (1) V Prereq.: GE 7195. 

7201 Fluid Flow in Porous Media (3) V Prereq.: PETE 4050 and 4056, or equivalent. General hydrodynamic concepts for flow of fluids through porous media. Two-dimensional fluid flow problems and potential theory methods; gravity flow systems; two-fluid systems; systems of nonlinear partial differential equations; applications of computerized streamline tracking methods.

7202 Advanced Well Testing Theory and Analysis (3) V Prereq.: PETE 4050 and 4056, or equivalent. Unsteady-state flow of reservoir fluids in porous media. Theory of pressure to buildup analysis; well interference testing; pulse testing; pressure drawdown analysis; drill stem testing; and water influx detection.

7211 Production System Analysis (3) V Prereq.: CE 2200, ME 3333 and PETE 4045 or equivalent. Use of multiphase flow correlations to determine flow rates and pressure traverses in flowing oil wells; gas-condensate wells, gathering systems, and pipeline systems; applications of correlations to the design of gas lift systems.

7212 Well Completion Design (3) V Prereq.: PETE 4046 or consent of instructor. Systems analysis for optimum production rates by designing best combination of tubing, flow lines, choke sizes, perforation density, and separator pressure; inflow performance of reservoirs; well completion techniques: gravel pack and acid treatment; oil production; downhole drilling; data processing; formation evaluation and data presentation.

7221 Drilling Data Acquisition and Processing (3) V Prereq.: PETE 4058, 4600, and 4800 or equivalent. Mud and cuttings disposal drilling fluids and formation evaluation; downhole data acquisition with drilling stopped and while drilling, data processing; formation evaluation and data presentation.

7271 Evaluation of Petroleum Reservoirs (3) V Prereq.: PETE 4050 and 4056, or equivalent. Evaluation of production performance of gas and liquid reservoirs, including multiphase flow in three dimensions.

7285 Statistical Reservoir Modeling (3) Prereq.: permission of instructor. Theory and practice of modeling uncertainty; spatially variable rock properties for subsurface reservoirs; distributions, transforms, Beyesian updating, variograms/cokrigograms, estimation and coestimation with various kriging methods, conditional simulation.

7995 Seminar (1) All graduate students are expected to attend this course every semester. Only 1 sem. hr. of credit will be awarded towards the degree. Pass/Fail grading.

7996 Thesis Research (1-6) Prereq.: May be taken for a maximum of 6 sem. hrs. of credit. Individual study and research.

7983 Mathematical Simulation of Petroleum Reservoir Processes (3) V Prereq.: PETE 4056 or equivalent; and PETE 4050 and 4051. Development and application of mathematical models for predicting petroleum reservoir performance, including multiphase flow in three dimensions.

7985 Statistical Reservoir Modeling (3) Prereq.: permission of instructor. Theory and practice of modeling uncertainty; spatially variable rock properties for subsurface reservoirs; distributions, transforms, Beyesian updating, variograms/cokrigograms, estimation and coestimation with various kriging methods, conditional simulation.

PHILOSOPHY + PHI.

General education courses are marked with stars (•).

• 1000 Introduction to Philosophy (3) Credit will not be given for both this course and PHI 1001. Major works on the nature of knowledge, relation of mind and body, right and good, existence of God, and freedom and determinism.

• 1001 HONORS: Introduction to Philosophy (3) Same as PHI 1001. With a special honors emphasis for qualified students. Credit will not be given for both this course and PHI 1001.

• 1021 Introduction to Logic (3) No special background