

**GEOP 415**

**Spring 2007**

**Course Information**

# Syllabus

- Instructor information

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# Syllabus

## •Objectives of the course

- To introduce geological principles essential for seismic interpretation.
- To be able to recognize various structural and stratigraphic features on seismic data.
- To be aware of techniques and pitfalls associated with seismic interpretation.

## •Textbook

- Interpretation of 3-D Seismic Data by A.R. Brown, 2004.

## •Supplementary reading

- Elements of 3D Seismology, by Christopher Liner, 2004.
- Exploration Seismology by R. E. Sheriff and L. P. Geldart, 1995.

# Syllabus

- Grading scheme

- 30% Midterm exam
- 25% Final exam
  - 10% Paper (5% Summary + 5% Presentation)
  - 15% Project (5% Program + 5% Report + 5% Presentation)
- 25% Homeworks
- 10% Quizzes
- 10% Attendance and Participation

- Rules

- Every day of delay over an assignment's deadline discounts 10% of the assignment grade.
- Every unexcused absence discounts 1% of the total course grade.

# Outline

- Introduction
  - Context of SI
  - Role of SI in prospect evaluation
  - Role of SI in reservoir development
- Geological concepts
  - Prospect requirements
  - Source rock
  - Reservoir rock
  - Trap
- Geophysical concepts
  - Structural traps
    - Faults
    - Folds
    - Diapirs

# Outline

- Geophysical concepts (continued)
  - Stratigraphic traps
    - Reefs
    - Channels
    - Unconformities
  - Stratigraphic interpretation
    - Seismic sequence stratigraphy
    - Seismic facies analysis
    - Reflection-character analysis
    - Direct hydrocarbon indicators
  - Tying well and seismic data
  - Seismic modeling
  - Wavelet estimation
  - Time-to-depth conversion
  - Seismic attributes
  - Interpretation pitfalls

# Outline

- Advanced SI concepts and case studies by industry professionals
  - Prospect evaluation
  - Reservoir development
  - Advanced topics