## Course Schedule

L = Lecture; D = Discussion

See [http://earthscope-sem.asu.edu/presentations](http://earthscope-sem.asu.edu/presentations) for all Reading Materials

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<th>Week</th>
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<td>01/20/2010</td>
<td>Course organization and team selection</td>
<td>Lecturer: MF, EG</td>
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| 2    | 01/26/2010 | **L1a:** Overview of the EarthScope Project and Facilities  
**L1b:** Seismic tomography using body waves | Lecturer: MF  
Reading: Sigloch et al., NatGeo (2008); Burdick et al., SRL (2008); Roth et al., GRL (2008); Schmandt and Humphreys, unpub (2009) |
| 3    | 02/02/2010 | NO CLASS                                                             |                                            |
| 4    | 02/09/2010 | **D1:** Earth structure, chemistry, & dynamics I: the upper mantle  
**L2:** Seismic tomography using surface waves | Discussion Leaders: MF, EG  
Lecturer: EG  
Reading: Bensen et al., GJI (2009); Lin et al., GJI (2008); Moschetti et al., G³ (2007); Yang and Ritzwoller, GRL (2008); Courtland, Nature (2008); Ritzwoller, YST (2008) |
| 5    | 02/16/2010 | **D2:** Earth structure, chemistry, and dynamics II  
**L3:** Magnetotellurics and conductivity | Discussion Leaders: MF, EG  
Lecturer: STUDENT TEAM 1  
Reading: Patro and Egbert, GRL (2008); Hill et al., NatGeo (2009) |
| 6    | 02/23/2010 | **D3:** Imaging fluids in the crust and mantle  
**L4:** Upper mantle seismic anisotropy | Discussion Leader: STUDENT TEAM 1  
Lecturer: STUDENT TEAM 2  
Reading: Zandt and Humphreys, Geology (2008), West et al., NatGeo (2009); Liu, G³ (2009); Becker et al. (2006) |
| 7    | 03/02/2010 | **D4:** Mapping upper mantle flow, fabric, and chemistry  
**L5:** Seismic reflectance & receiver functions | Discussion Leader: STUDENT TEAM 2  
Lecturer: STUDENT TEAM 3  
Reading: Gilbert et al., JGR (2004); Frassetto et al., EPSL (2006); Ligorio and Ammon, BSSA (1999); Abt et al., JGR (2010) |
| 8    | 03/09/2010 | **D5:** Mapping chemical & phase discontinuities in the crust & upper mantle  
**L6:** Surface motions and deformation | Discussion Leader: STUDENT TEAM 3  
Lecturer: STUDENT TEAM 4  
Reading: Davis et al., Nature (2006); McCaffrey et al., (GRL 2000); Kreemer, JGR (2009); Hammond and Thatcher, JGR (2007) |
| 9    | 03/16/2010 | NO CLASS – Spring Break |                                            |
| 10   | 03/23/2010 | NO CLASS                                                             |                                            |
| 11   | 03/30/2010 | **D6:** Linking deformation between the surface, crust, and mantle  
**L7:** Episodic tremor and slip (ETS) | Discussion Leader: STUDENT TEAM 4  
Lecturer: STUDENT TEAM 1  
Reading: Brudzinski and Allen, Geology (2007); Ghosh et al., GRL (2009); Kao et al., JGR (2009); Rogers and Dragert, Science (2003) |
| 12   | 04/06/2010 | **D7:** The nature and diversity of earthquake fault behavior, fluids in fault zones  
**L8:** Earthquake triggering | Discussion Leader: STUDENT TEAM 1  
Lecturer: STUDENT TEAM 2  
Reading: Velasco, Gomberg, Magee papers, others? |
| 12 | 04/13/2010 | D8: Nature of fault loading, earthquake cycles  
L9: Science using EarthScope’s San Andreas Fault Observatory at Depth (SAFOD) | Discussion Leader: STUDENT TEAM 2  
Lecturer: STUDENT TEAM 3  
Reading: SAFOD papers |
| 13 | 04/20/2010 | D9: Rheology of fault rocks at depth  
L10: TBD (new discoveries this semester) | Discussion Leader: STUDENT TEAM 3  
Lecturer: STUDENT TEAM 4 |
| 14 | 04/27/2010 | D10: TBD (new discoveries this semester)  
L11: Synthesis / Highlights | Discussion Leader: STUDENT TEAM 4  
Lecturer: MF, EG |
| 15 | 05/04/2010 | D11: Future Directions | Discussion Leaders: MF, EG, CLASS |