SCHEDULE FOR SPRING 2002			
Date	**Lecture/Lab**	**Topic**	**Required reading**
Jan 14	Lecture 1.	Logistic: Goals and structure of the course	
Jan 16	Lecture 2.	The nature of electromagnetic radiation. Polarization. Stokes' parameters	G 2.1-2.4, 4.1,4.3
Jan 18	*Lab 1.*	*Electromagnetic radiation*	
Jan 21	HOLIDAY		
Jan 23	Lecture 3.	Basics of remote sensing: introductory survey	G 1.1, 1.7, p.395-398, 426-427
Jan 25	*Lab 2.*	*Learn about major NASA and NOAA satellite projects*	
Jan 28	Lecture 4.	Radiation law. Blackbody emission. Brightness temperature. Sun as an energy source.	G 2.5
Jan 30	Lecture 5.	Emission and reflection from the ocean and land surfaces	G 4.4; p. 177-183
Feb 1	*Lab 3.*	*Planck function and emission from the surfaces. Sea-ice detection.*	
Feb 4	Lecture 6.	The composition and structure of the atmosphere. Atmospheric gases	G 1.3-1.5, 3.2.1
Feb 6	Lecture 7.	Absorption/emission by atmospheric gases and effects on remote sensing	G 3.1-3.5
Feb 8	*Lab 4.*	*Absorption by gases*	
Feb 11	Lecture 8.	Properties of atmospheric aerosols and clouds	G 1.6, 4.3
Feb 13	Lecture 9.	Rayleigh scattering. Scattering/absorption by aerosols and clouds	G 5.1-5.7
Feb 15	*Lab 5.*	*Retrieval of aerosol optical properties from sunphotometer observations: AERONET and aircraft measurements*	G 6.1
Feb 18	Lecture 10.	Principles passive remote sensing using extinction and scattering. Scattering as a source of radiation. Multiple scattering. The two-stream approximation	G 6.3, 6.4, 6.6
Feb 20	Lecture 11.	Applications of passive remote sensing using extinction and scattering: Remote sensing of ozone in the UV region	G 6.2, 6.5
Feb 22	*Lab 6.*	*Ozone retrievals from TOMS and ground-based observations*	
Feb 25	Lecture 12.	EXAM I	
Feb 27	Lecture 13.	Applications of passive remote sensing using extinction and scattering: Ocean color	G 6.3
Mar 1	*Lab 7.*	*Ocean color characterization*	
Mar 4	Lecture 14.	Principles of passive remote sensing using emission. Radiative transfer with emission. Measurements of precipitable water vapor	G 7.1, 7.3.1, 7.3.2
Mar 6	Lecture 15.	Applications of passive remote sensing using emission: Remote sensing of sea surface temperature (SST)	G 7.2, 4.5.1
Mar 8	*Lab 8.*	*Retrievals of SST*	
Mar 11	Lecture 16.	Applications of passive remote sensing using emission: Sensing of precipitation	G 7.4
Mar 13	Lecture 17.	Applications of passive remote sensing using emission: Sensing of clouds	G 7.6
Mar 15	*Lab 9.*	*ISCCP project. Cloud detection and analysis*	
Mar 18	Lecture 18.	Principles of sounding by emission. Sounding of the temperature profile	G 7.5,
Mar 20	Lecture 19.	Sounding of trace gases and air pollution	G 7.5.4, 7.7
Mar 22	*Lab 10.*	*Remote atmospheric sounding*	
SPRING BREAK			
Apr 1	Lecture 20.	Principles of active remote sensing: Radars	G 8.1, 8.2.1,
Apr 3	Lecture 21.	Applications of radars: Sensing of clouds and precipitation	G 8.2.2,8.2.3, 8.3
Apr5	*Lab 11*	*Analysis of radar sensing*	
Apr8	Lecture 22.	Principles of active remote sensing: Lidars	G 8.4.1, 8.4.2
Apr10	Lecture 23.	Applications of lidars: Sensing of aerosols and clouds	G 8.4.3, 8.4.4
Apr 12	*Lab 12.*	*Analysis of lidar sensing*	
Apr 15	Lecture 24.	Applications of the synthetic aperture radar: Sea ice mapping	
Apr 17	Lecture 25.	Applications of the Doppler radar: Measurements of winds	G 8.6, 8.7, 8.8
Apr 19	*Lab 13.*	*Students' project presentation*	
Apr 22	Lecture 26.	Review: Part 1	
Apr 24	Lecture 27.	*Students' project presentation*	
Apr 26	*Lab 14.*	*Students' project presentation*	
Apr 29	Lecture 28.	Review: Part 2	
May 1	Lecture 29.	EXAM II	