

PHYSICS 514 – – FALL 2026

Current Research Instruments

Lecture: T0 – 12:30 - 1:50

Room: Physics S-265

as of August 19, 2026, subject to change

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Week # Monday date	Tuesday	Thursday	Homework
I 8/24	Intro & Vacuum I (Metcalf)	Vacuum II (Metcalf)	
II 8/31	Vacuum III (Metcalf)	Feedback and Control (Metcalf)	
III 9/7	Signals and Noise (Metcalf)	Astronomical Instruments Deformable Mirrors (Metcalf)	
IV 9/14	Introduction to X-rays (Metcalf)	Synchrotron Radiation (Metcalf)	Feedback and Control papers due Tuesday
V 9/21	Accelerators (Metcalf)	Our Tandem (Metcalf)	
VI 9/28	Tour Tandem (Lefferts)	Future Electron-Ion Collider (Hemmick)	
VII 10/5	TBA (Abhay Deshpande)	TBA Hannah Arnold & Valerio Dao	
Everything below here is just a space holder. Subject to change.			
VIII 10/12	HOLIDAY NO CLASSES	Visit to Electron Microscope (Quinn)	Low temp papers due Thursday
	Temperatures High and Low (Metcalf)	Low Temperature Techniques (Xu Du)	papers due Thursday
	Liquefying Helium (Erle Graf - room A-125)	TeraHertz Radiation (Mengkun Liu)	
IX 10/19	Optical Instruments: What can we Measure? Intensity, Polariz.(Jones mat's) (Metcalf)	Intro to Various Lasers Tunable Lasers (Metcalf)	
X 10/26	Ultracold (Schneble) (D)	Intro to Frequency Measurement Saturation and PDH schemes (Metcalf)	Optical Instruments papers due Tuesday
XI 11/2	Mode Locked Lasers Frequency Combs (Metcalf)	Ultrafast (Weinacht)	
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XII 11/9	Visit to AMO Labs (Metcalf)		Lasers and Optical papers due Thursday
XIV 11/23	TBA	NO CLASS Thanksgiving	
XV 11/30	TBA	TBA	Limits to Resolution $\Delta\omega \Delta t \geq 1$ (Metcalf)

(Required Statement)

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary>.