MATERIALS SCIENCE AND ENGINEERING (0750)

Teaching Schedule 2014-2015 - updated March 19, 2014

Course No.	Title		Fall	Winter	Spring
GT 106	Freshman Design and Communications				
298/398	IDEA				
101	Modern Materials				
190	MS&E Freshman Projects		TTh 2:00 Dravid		
201	Principles of the Properties of Materials		TTh 9:30 Rim /Lauhon	TTh 9:30 Rondinelli	TTh 9:30 Olvera
301	Chemical Aspects of Engineering Materials		MWF 12:00 Chung		MWF 12:00 Joester
314	Thermodynamics of Materials		MTWF 3:00 Lauhon		
315	Phase Equilibria and Diffusion in Materials			MTWF 2:00 Wolverton	
316-1	Microstructural Dynamics				MTWF 1:00 Shull
316-2	Microstructural Dynamics		MWThF 1:00 Joester		
318	Materials Selection			MWF 12:00 Wessels	
331	Soft materials			MWF 3:00 Shull	
332	Mechanical Behavior of Solids		MWF 10:00 Rim/Shull		
333	Composites				
336	Chemical Synthesis of Materials				TTh 2:00 Stupp
337	Conducting Polymers				
340	Ceramic Processing		MWF 2:00 Barnett		
341	Intro to Modern Ceramics				
351-1	Intro Physics of Materials			MTWF 1:00 Barnett	
351-2	Intro Physics of Materials				MWF 3:00 Wessels
355	Electronic Materials				
357	Magnetic Properties of Materials		TTh 11:00 Petford-Long		
360	Electron Microscopy		TTh 12:30 Marks		TTh 12:30 Dravid
361	Crystallography & Diffraction			MWF 11:00 Bedzyk	

362	Point, Line & Planar Imperfections				
370	BioMaterials				
371	Biominerals: Hierarchichal Architecture and Function			TTh 12:30 Joester	
372					TTh 9:30 Shah
376	Nanomaterials			MWF 3:00 Lauhon	
380	Intro to Surface Science & Spectroscopy				
381	Energy Materials			TTh 11:00 Dunand	
382	Fuel Cells				TTh 11:00 Barnett
390	Materials Design				MWF 11:00 Olson
391	Process Design		MWF 3:00 Chung		
394	Honors Project		TBA	TBA	TBA
395	Electro & Therm Props of Mats				W 3:00, Th 3:30 Snyder
395	Mechanical Modeling				
395	Special Topics: Engineering Strategies in Tissue Engineering & Regenerative Medicine				
396	Senior Project MS&E		W 12:00 Stair	W 2:00 Stair	W 12:00 Stair
398	Introduction to Plasma Sci. and Processing Tech.				
399	Special Projects MS&E		TBA	TBA	TBA
401	Chemical and Statistical Thermodynamics of Materials		MWF 9:00 Luijten		
404	Imperfections in Materials			MTWF 10:00 Seidman	
405	Physics of Solids				MTWF 1:00 Hersam
406	Symmetry and Mechanical Properties of Materials				MWF 2:00 Dunand/Rim
408	Phase Transformations in Materials			MTWF 12:00 Wolverton	

411	Phase Transformations in Crystalline Materials		TTh 2:00 Voorhees		
415	Fundamentals of Thin Film Materials				
416	Kinetics				TWTh 9:30 Seidman
434	Fracture of Brittle Solids				
435	High Temperature Materials				
445	High Polymer Science				
451	Physics of Materials		MTWF 1:00 Hersam		
452	Special Topics in Solid State Physics of Materials: Optoelectronic Materials				
455	Physcis of Nanostructures		MWF 10:00 Wessels		
456	Functional Metamaterials				
458	Computational Materials Science		MTWF 11:00 Wolverton		
460	Electron Microscopy			TTh 2:00 (MatSci only) Marks	
461	Diffraction Methods in Materials Science				TTh 2:00 Bedzyk
465	Advanced Electron Microscopy and Diffraction				TTh 11:00 Marks
466	Analytical Electron Microscopy				
481	Solar Energy Conversion				
495	Biomineralization				
495	Solar Energy Conversion				
495	Mechanics of the Cell				
495	Mechanics of Soft Matter				
498	Statistical Mechanics				
499	Projects		TBA	TBA	TBA
510	Special Topics Computational				
519	RCR Training		TBA (Mat Sci only) Lauhon		
590	Research		TBA	TBA	TBA

Some Non-MSE Courses of Interest (not an exhaustive list)

CIV_ENV 430	Cohesive Fracture and Scaling			MWF 4:00-5:50 Bazant	
CIV_ENV 415	Theory of Elasticity			Brinson	
ES_APPM 311-1	Methods in Applied Math	20	MWF 12:00 Olmstead		
ES_APPM 311-1	Methods in Applied Math	21	MWF 11:00 Olmstead		
ES_APPM 495	Modeling of Soft Materials		TTh 12:30-1:50 Luijten		
ES_APPM 495	Intro to Statistical Mechanics			TBA Luijten	
Chem 360	Nanopatterning			TTH 1:00 Odom	
Chem 407	Materials and Nanochemistry		Tu-Th 11:00-12:20 Schaller		
Chem_Eng 361	Introduction to Polymers		MTWF 10:00 Torkelson		
Chem_Eng 451	Applied Molecular Modeling				
Chem_Eng 462	Viscoelasticity and Flow in Polymer Systems				
Chem_Eng 475	Cell-Material Interactions			MW 4:00-5:30 Shea	
Chem_Eng 478	Advances in Biotechnology				W 12-2, F 1-2 Shea
BME 343	Biomaterials and Medical Devices				
ME 445	Micromanufacturing		TuTh 9:30-11 Cao		
ME 456	Mechanics of Advanced Materials				
ME 495	Nanoengineered Materials for Mecanobiology				
ME 495	Nuvention: Medical Innovation		TBA 6:00-9:00 PM Marasco	**Note:** Interested students can contact Kevin Henderson (current MSE grad student) for advice	
ME 381	Intro to Micro-electro-mechanical systems		MWF 11:00 Espinosa		
ME 382	Experiments in Micro- and nano-science and Engineering				TuTh 12:30-1:50 Espinosa

requirement for Ph.D. Program

satisfies 400-level (graduate) MSE requirement