

MATERIALS SCIENCE AND ENGINEERING (0750)

Teaching Schedule 2018-2019

<u>Course No.</u>	<u>Title</u>	<u>Fall</u>	<u>Winter</u>	<u>Spring</u>
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 Emery/Wolverton	MWF 10:00 Chung	TTh 9:30 Emery
301	Chemical Aspects of Engineering Materials	MWF 12:00 Shull		TTh 9:30 Rondinelli
314	Thermodynamics of Materials	MTWF 3:00 Barnett		
315	Phase Equilibria and Diffusion in Materials		MTWF 2:00 Wolverton/Emery	
316-1	Microstructural Dynamics			MTWF 1:00 Joester
316-2	Microstructural Dynamics	MWThF 1:00 Joester		
318	Materials Selection		MWF 11:00 Carr	MWF 3:00 Carr
331	Soft materials		MWF 3:00 Huang	
332	Mechanical Behavior of Solids		MWF 1:00 Shull	
333	Composites			
336	Chemical Synthesis of Materials			TTh 2:00 Stupp
337	Conducting Polymers			MWF 12:00 Huang
340	Ceramic Processing			
341	Intro to Modern Ceramics			
351-1	Intro Physics of Materials	MWF 10:00 Snyder		
351-2	Intro Physics of Materials			MWF 10:00 Lauhon
353	Bioelectronics			TTh 9:30 Rogers
354	Bioelectronics Lab			Th 4:00 Rivnay
355	Electronic Materials	MWF 11:00 Wessels		
357	Nanomagnetic Materials for Information Storage	TTh 11:00 Petford-Long		

360	Electron Microscopy		TTh 9:30 Marks	L.		TTh 12:30 Dravid
361	Crystallography & Diffraction				MWF 12:00 Bedzyk	
362	Point, Line & Planar Imperfections					
370	BioMaterials					
371	Biomaterials: Hierarchical Architecture and Function					
376	Nanomaterials					
380	Intro to Surface Science & Spectroscopy				MWF 9:00 Guisinger	
381	Energy Materials				TTh 11:00 Dunand	
382	Electrochemical Energy Materials and Devices					MWF 2:00 Barnett
385	Electronic and Thermal Properties of Materials					MWF 3:00 Snyder
390	Materials Design					MWF 11:00 Olson
391	Process Design		MWF 3:00 Chung			
394	Honors Project		TBA	TBA	TBA	TBA
395	Magnetic Properties of Materials					
395	Mechanical Modeling					
395	Special Topics: Engineering Strategies in Tissue Engineering & Regenerative Medicine					
395	Special Topics: Materiality in Art and Archaeology of Roman Metals		TTh 2:00 Walton			
395	Special Topics: Organic Materials		TTh 5:00 Gianneschi			
395	Special Topics: Computational Thermodynamics and Kinetics			TTh 9:30 Agren		
395	Special Topics:					
395	Special Topics					
396	Senior Project MS&E		W 2:00 Stair	W 2:00 Stair	W 2:00 Stair	
398	Introduction to Plasma Sci. and Processing Tech.					

399	Special Projects MS&E		TBA	TBA	TBA
401	Chemical and Statistical Thermodynamics of Materials		MWThF 2:00 Luijten/Lauhon		
402	Structure of Crystalline and Noncrystalline Materials		TTh 12:30, F 11:00 Rondinelli		
404	Imperfections in Materials			MWF 2:00 Seidman/Haile	
405	Physics of Solids			MTWF 1:00 Hersam	
406	Symmetry and Mechanical Properties of Materials				MWF 9:00 Dunand/Emery
408	Phase Transformations in Materials				MWF 10:00 Voorhees
411	Phase Transformations in Crystalline Materials				
415	Fundamentals of Thin Film Materials			TTh 12:30 Barnett	
416	Kinetics				TTh 2:00 Seidman
434	Fracture of Brittle Solids				
435	High Temperature Materials				
445	High Polymer Science		MW 4:00 Olvera		
451	Physics of Materials		MWF 1:00, T 2:00 Hersam		
452	Special Topics in Solid State Physics of Materials: Optoelectronic Materials				
455	Phycsis of Nanostructures				
456	Functional Metamaterials				
458	Computational Materials Science			MWF 9:00 Wolverton	
460	Electron Microscopy			TTh 2:00 (MatSci only) Marks	
461	Diffraction Methods in Materials Science				TTh 11:00 Bedzyk

465	Advanced Electron Microscopy and Diffraction				
466	Analytical Electron Microscopy				
485	Electronic and Thermal Properties of Materials				MWF 3:00 Snyder
495	Materials Biology			TTh 9:30 Joester	
495	Solar Energy Conversion			MW 3:00 Chang	
495	Mechanics of the Cell				
495	Mechanics of Soft Matter				
495	Solid State Electrochemistry for Energy Storage and Conversion				
498	Statistical Mechanics				
499	Projects		TBA	TBA	TBA
510	Special Topics Computational				
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				
ES_APPM 495	Intro to Statistical Mechanics				
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