

UNIVERSITY OF IDAHO
College of Engineering Department of Materials Science and Engineering

B.S. MATERIALS SCIENCE AND ENGINEERING

Advising Summary and Checklist
2006-2007 Academic Year Requirements

The minimum number of credits for the degree is **131**, exclusive of Engl 101 and mathematics courses numbered lower than Math 170. A total of 18 credits of General Core Studies are required. 7 credits of Core Discovery are required. Core 113 or Core 108 or Core 104 is recommended in the fall semester earning 4 social science credits. Core 163 or Core 158 or Core 154 is recommended in the spring semester earning 3 humanities credits. Core 163 is second semester of Core 113. Core 158 is second semester of 108 and Core 154 is second semester of Core 104. 8-9 credits of general core electives are required from the **same cluster** with one of the courses being an upper division level and one an international course. The Professionalism, Society and Ethics cluster is recommended. Finally, MSE 414 fulfills the capstone requirement. 7 credits of Core, 8-9 credits from 1 cluster (upper division course and international course), and 3 credits from the capstone course meet or exceed the 18 credit minimum of general core studies.

Freshman Year - Fall Semester

Course	Title	Credits	Complete
Chem 111	Principles of Chemistry I	4	
Core	Core 113 or 108 or 104 Recommended (Soc. Science)	4	
Engl 102	Essay Writing	3	
Math 170	Analytical Geom & Calculus I	4	
MSE 101	Intro. to Met. and Mats. Sci.	2	
Total		17	

Freshman Year - Spring Semester

Course	Title	Credits	Complete
Chem 112	Principles of Chemistry II	5	
Core	Core 163 or 158 or 154 Recommended (Humanities)	3	
CS 112	Intro/Problem Solving & Programming	3	
Math 175	Analytical Geom & Calc II	4	
Phys 211	Engineering Physics I	4	
Total		19	

Sophomore Year - Fall Semester

Course	Title	Credits	Complete
	Amst 301 or Phil 103 (Humanities)	3	
Engr 105	Engineering Graphics	2	
Math 275	Analytical Geom Cal III	3	
MSE 201	Elements of Materials Science	3	
Phys 212	Engineering Physics II	4	
	Core Studies-Same Cluster (Upper Division/International?)	2-3	
Total		17-18	

Sophomore Year - Spring Semester

Course	Title	Credits	Complete
Econ	Econ 201 or 202 or 272 (Soc. Science)	3-4	
Engr 210	Engineering Statics	3	
Engr 240	Introduction to Electrical Circuits	3	
Math 310	Ordinary Differential Equations	3	
Stat 301	Probability and Statistics	3	
Total		15-16	

Junior Year - Fall Semester

Course	Title	Credits	Complete
Chem 305	Physical Chemistry	3	
Engr 350	Engr. Mechanics of Materials	3	
MSE 313	Physical Metallurgy -Offered Even Years	4	
MSE 341	Particulate Materials Processing	4	
MSE 423	Corrosion	3	
Total		17	

Junior Year - Spring Semester

Course	Title	Credits	Complete
Engl 317	Technical Writing	3	
MSE 308	Thermodynamics of Materials	3	
MSE 309	Transport Phenom. for Design	4	
MSE 412	Mechanical Behavior of Materials	3	
MSE 413	Phase Equilibria in Materials	3	
Total		16	

Senior Year - Fall Semester

Course	Title	Credits	Complete
MSE 417	Instrumental Analysis	3	
MSE 427	Ceramic Materials	3	
MSE 432	Fundamentals of Thin Film Fab. -Offered Odd Years	3	
MSE 434	Fundamentals of Polymeric Mats.	3	
	Technical Elective	3	
Total		15	

Senior Year - Spring Semester

Course	Title	Credits	Complete
MSE 414	Process Design	3	
MSE 415	Materials Selection & Design	3	
MSE 430	Elect., Opt., and Mag. Prop. Mats	3	
	Technical Electives	6	
Total		15	

Total: 131

MSE TECHNICAL ELECTIVES (Revised 11/18/04)

- ChE 415 Integrated Circuit Fabrication (3 cr. Spring)
- MSE 202 Microstructural Evaluation (2 cr. Offered On Demand)
- MSE 344 Hydroprocessing of Materials (4 cr. Spring)
- MSE 400 Seminar (Credit Arranged)
- MSE 404 Special Topics (Credit Arranged)
- MSE 407 Materials Fabrication (3cr. Fall)
- MSE 410 Plasma Processing of Materials (3 cr. Fall)
- MSE 421 Light Metals (3 cr. Spring Even Years)

NOTE: Highlighted courses offered semester shown only.

- MSE 429 Melting, Casting & Powder Met (3 cr. Spring Odd Years)
- MSE 442 Pyroprocessing of Materials (4 cr. Fall)
- MSE 463 Mech. Of Mats. Process (3 cr. Offered On Demand)
- MSE 480 TEM of Materials (3 cr. Fall)
- MSE 486 Solid State Electronics (3 cr.)-See ECE 466 Semiconductor Devices (3 cr. Fall)
- MSE 498 Internship (Credit Arranged)
- MSE 499 Directed Study (Credit Arranged)
- PHYS 463 Introduction to Solid State Physics (3 cr.)

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B.S. MATERIALS SCIENCE AND ENGINEERING - Degree Requirement Guide for Catalog 2006-2007

The minimum number of credits for the degree is **131**, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

Chemistry:		Credits	Planned	Semester Completed	Grade
Chem 111	Principles of Chemistry I	4			
Chem 112	Principles of Chemistry II	5			
Chem 305	Physical Chemistry	3	FALL	FALL	

Computer Science:		Credits	Planned	Semester Completed	Grade
CS 112	Intro/Problem Solving & Programming	3			

Engineering:		Credits	Planned	Semester Completed	Grade
Engr 105	Engineering Graphics	2			
Engr 210	Engineering Statics	3			
Engr 240	Introduction to Electrical Circuits	3			
Engr 350	Engineering Mechanics of Materials	3			

English:		Credits	Planned	Semester Completed	Grade
Engl 102	Essay Writing	3			
Engl 317	Technical Writing	3			

Humanities:

A total of 18 credits of General Core Studies are required. 7 credits of Core Discovery are required. Core 113 or Core 108 or Core 104 is recommended in the fall semester earning 4 social science credits. Core 163 or Core 158 or Core 154 is recommended in the spring semester earning 3 humanities credits. Core 163 is second semester of Core 113. Core 158 is second semester of 108 and Core 154 is second semester of Core 104. 8-9 credits of general core electives are required from the **same cluster** with one of the courses being an upper division level and one an international course. The Professionalism, Society and Ethics cluster is recommended. Finally, MSE 414 fulfills the capstone requirement. 7 credits of Core, 8-9 credits from 1 cluster (upper division course and international course), and 3 credits from the capstone course meet or exceed the 18 credit minimum of general core studies.

Amst 301 or Phil 103	Studies in Amer Culture or Phil-Ethics (Humanities)	3			
Core	Core 113 or 108 or 104 Recommended (Social Science)	4	FALL	FALL	
Core	Core 163 or 158 or 154 Recommended (Humanities)	3	SPRING	SPRING	
Econ	Economics 201 or 202 or 272 (Social Science)	3/4			
	Core Studies Elective -Same Cluster (Upper Division/International?)	2/3			

Math & Statistics:

Math 170	Analytical Geometry & Calculus I	4			
Math 175	Analytical Geometry & Calculus II	4			
Math 275	Analytical Geometry & Calculus III	3			
Math 310	Ordinary Differential Equations	3			
Stat 301	Probability and Statistics	3			

Materials Science and Engineering:

MSE 101	Introduction to Metallurgy & Materials	2	FALL	FALL	
MSE 201	Elements of Materials Science	3	FALL	FALL	
MSE 308	Thermodynamics of Materials	3	SPRING	SPRING	
MSE 309	Transport Phenomena for Design	4	SPRING	SPRING	
MSE 313	Physical Metallurgy	4	FALL	FALL	
MSE 341	Particulate Materials Processing	4	FALL	FALL	
MSE 412	Mechanical Behavior of Materials	3	SPRING	SPRING	
MSE 413	Phase Equilibria in Materials	3	SPRING	SPRING	
MSE 414	Process Design (Humanities Capstone Course)	3	SPRING	SPRING	
MSE 415	Materials Selection & Design	3	SPRING	SPRING	
MSE 417	Instrumental Analysis	3	FALL	FALL	
MSE 423	Corrosion	3	FALL	FALL	
MSE 427	Ceramic Materials	3	FALL	FALL	
MSE 430	Electronic, Optical, Magnetic Properties	3	SPRING	SPRING	
MSE 432	Fundamentals of Thin Film Fabrication	3	FALL	FALL	
MSE 434	Fundamentals of Polymeric Materials	3	FALL	FALL	

See Page Two for Physics and Technical Electives (9 credits required)-See Advisor for Approval

Physics:

Phys 211	Engineering Physics I	4			
Phys 212	Engineering Physics II	4			

Materials Science and Engineering Technical Electives (9 credits required) - see advisor for approval:

ChE 415	Integrated Circuit Fabrication	3	SPRING	SPRING	
MSE 202	Microstructural Evaluation (Course Offered On Demand)	2			
MSE 344	Hydroprocessing of Materials	4	SPRING	SPRING	
MSE 400	Seminar (Credit Arranged)				
MSE 404	Special Topics (Credit Arranged)				
MSE 407	Materials Fabrication	3	FALL	FALL	
MSE 410	Plasma Processing of Materials	3	FALL	FALL	
MSE 421	Light Metals	3	SPRING EVEN YEARS	SPRING	
MSE 429	Melting, Casting & Powder Met	3	SPRING ODD YEARS	SPRING	
MSE 442	Pyroprocessing of Materials	4	FALL	FALL	
MSE 463	Mech. Of Mats. Process (3 cr. Offered on Demand)				
MSE 480	TEM of Materials	3	FALL	FALL	
MSE 486	Solid State Electronics (3 cr).-See ECE 466 Semiconductor Devices (3 cr. Fall)	3			
MSE 498	Internship (Credit Arranged)				
MSE 499	Directed Study (Credit Arranged)				
PHYS 463	Introduction to Solid State Physics	3			

B.S. Material Science and Engineering - General Core Studies Guide (Gray Areas Not Part of Cluster-Revised 9/27/04)

Directions: 1.) Choose Core preference (113-163, 108-158, 104-154). 2.) Choose between Amst 301 or Phil 103. 3.) Choose between Econ 201, 202 or 272. Find the cluster with your three choices and choose your remaining course.

A total of 18 credits of General Core Studies are required. 7 credits of Core Discovery are required. Core 113 or Core 108 or Core 104 is recommended in the fall semester earning 4 soc. science credits. Core 163 or Core 158 or Core 154 is recommended in the spring semester earning 3 humanities credits. Core 163 is second semester of Core 113. Core 158 is second semester of 108 and Core 154 is second semester of Core 104. 8-9 credits of general core electives are required from the **same cluster** with one of the courses being an upper division level and one an international course. The Professionalism, Society and Ethics cluster is recommended. Finally, Met 414 fulfills the capstone req. 7 credits of Core, 8-9 credits from 1 cluster (upper division course and international course), and 3 credits from the capstone course meet or exceed the 18 credit general core studies minimum.

Environmental and Natural Resource Politics Cluster:

Core 113 or 163	Globalization (3 cr. Or 4 cr.)			Fulfills Requirement	
Econ 202	Principles of Economics (3 cr)	or	Econ 272	Foundations of Economic Analysis (4 cr)	Core Social Science and International or Core Humanities and International
Phil 103	Ethics (3 cr)				Social Science Humanities

Options-Choose One Course from the Following:

Agec 477	Law, Ethics & The Environment (3 cr.)			Upper Division Social Science
Econ 385	Environmental Economics (3 cr.)			Upper Division Social Science
For 484	Forest Policy and Administration (2 cr.)			Upper Division
Geog 420	Land, Resources and the Environment (3 cr.)			Upper Division Social Science
Hist 424	American Environmental History (3 cr.)			Upper Division Social Science
Phil 452	Environmental Philosophy (3 cr.)			Upper Division Humanities
Pols 462	Natural Resource Policy (3 cr.)			Upper Division Social Science
Pols 464	Politics of the Environment (3 cr.)			Upper Division Social Science
Rrt/Mrtn 486	Public Involvement in Natural Resource Management (3 cr.)			Upper Division
Rrt 493	International Land Preservation and Conservation Systems (3 cr.)			Upper Division and International

Environmental and Natural Resource Politics Cluster:

Core 154	Contemporary American Experience (3 cr.)	or	Core 158	Social Transformations-Market Myths	Fulfills Requirement
Econ 202	Principles of Economics (3 cr)	or	Econ 272	Foundations of Economic Analysis (4 cr)	Core Humanities or Core Social Science
Phil 103	Ethics (3 cr)				Social Science Humanities

Options-Choose One Course from the Following:

Rrt 493	International Land Preservation and Conservation Systems (3 cr.)			Upper Division and International
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Food, Resources, and Global Sustainability Cluster:

Core 163	Globalization (3 cr.)			Fulfills Requirement	
Econ 201	Principles of Economics (3 cr)	or	Econ 272	Foundations of Economic Analysis (4 cr)	Core Humanities and International
Phil 103	Ethics (3 cr)				Social Science Humanities

Options-Choose One Course from the Following:

Any Upper Division Social Science Course From Any Cluster

Food, Resources, and Global Sustainability Cluster:

Core 154	Contemporary American Experience (3 cr.)	or	Core 158	Social Transformations-Market Myths	Fulfills Requirement
Econ 201	Principles of Economics (3 cr)	or	Econ 272	Foundations of Economic Analysis (4 cr)	Core Humanities or Core Social Science
Phil 103	Ethics (3 cr)				Social Science Humanities

Options-Choose One Course from the Following:

Agec 481	Agricultural Markets in a Global Economy (3 cr.)			Upper Division Social Science and International
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Living in the Global Marketplace Cluster:

Core 163	Globalization (3 cr.)			Fulfills Requirement	
Econ 201	Principles of Economics (3 cr)	or	Econ 272	Foundations of Economic Analysis (4 cr)	Core Humanities and International
Phil 103	Ethics (3 cr)				Social Science Humanities

Options-Choose One Course from the Following:

Any Upper Division Social Science Course From Any Cluster

Living in the Global Marketplace Cluster:

Core 158	Social Transformations-Market Myths (3 cr.)			Fulfills Requirement	
Econ 201	Principles of Economics (3 cr)	or	Econ 272	Foundations of Economic Analysis (4 cr)	Core Social Science
Phil 103	Ethics (3 cr)				Social Science Humanities

Options-Choose One Course from the Following:

Any Upper Division Humanities and International Course From Any Cluster

Living in the Global Marketplace Cluster:

Core 154	Contemporary American Experience (3 cr.)			Fulfills Requirement	
Econ 201	Principles of Economics (3 cr)	or	Econ 272	Foundations of Economic Analysis (4 cr)	Core Humanities
Phil 103	Ethics (3 cr)				Social Science Humanities

Options-Choose One Course from the Following:

Agec 481	Agricultural Markets in a Global Economy (3 cr.)			Upper Division Social Science and International
Anth 462	Human Issues in International Development (3 cr.)			Upper Division Social Science and International
Bus 482	International Marketing (3 cr.)			Upper Division and International
Comm 335	Intercultural Communications (3 cr.)			Upper Division Social Science and International
Econ 446	International Economics (3 cr.)			Upper Division Social Science and International

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Econ 447	Economics Developing Countries (3 cr.)		Upper Division Social Science and International
Flen 307	The European Union (3 cr.)		Upper Division Social Science and International
Geog 350	Geography of Development (3 cr.)		Upper Division Social Science and International
Span 309	Spanish for Business (3 cr.)		Upper Division and International

Professionalism, Society and Ethics Cluster:

Amst 301	Studies in American Culture (3 cr)		
Core 154	Contemporary American Experience (3 cr.)		
Econ 202	Principles of Economics (3 cr)	or Econ 272	Foundations of Economic Analysis (4 cr)

Options-Choose One Course from the Following:

Any International Social Science Course From Any Cluster

Fulfills Requirement

Upper Division Humanities
Core Humanities
Social Science

Professionalism, Society and Ethics Cluster:

Core 154	Contemporary American Experience (3 cr.)		
Econ 202	Principles of Economics (3 cr)	or Econ 272	Foundations of Economic Analysis (4 cr)
Phil 103	Ethics (3 cr)		

Options-Choose One Course from the Following:

Any International Upper Division Social Science Course From Any Cluster

Fulfills Requirement

Core Humanities
Social Science
Humanities

Professionalism, Society and Ethics Cluster:

Amst 301	Studies in American Culture (3 cr)		
Core 113 or 163	Globalization (3-7 cr.)		
Econ 202	Principles of Economics (3 cr)	or Econ 272	Foundations of Economic Analysis (4 cr)

Options-Choose One Course from the Following:

Agec 101	Agricultural Economics and Agribusiness (3 cr.)		
Agec 477	Law, Ethics and the Environment (3 cr.)		
Amst 201	Introduction to Ethnic Studies (3 cr.)		
Anth 462	Human Issues in International Development (3 cr.)		
Art 271	Interface Design I (3 cr.)		
Blaw 265	Legal Environment of Business (3 cr.)		
Bus 101	Introduction to Business Enterprises (3 cr.)		
Bus 321	Marketing (3 cr.)		
Core 154	Contemporary American Experience (3 cr.)		
Econ 202	Principles of Economics (3 cr)	or Econ 272	Foundations of Economic Analysis (4 cr)
Larc 358	Landscape Architecture Professional Practice (2 cr.)		
Ms 101, 102	Fundamentals of Leadership (1 cr.)-NOTE: You need 8-9 credit in this cluster. What is your total?		
Pep 275	Moral Reasoning in Sport (2 cr.)		
Phil 252	Biomedical Ethics (3 cr.)		
Phil 434	Philosophy of Law (3 cr.)		
Phil 450	Ethics and Reasoning in Scientific Research and Practice (3 cr.)		
Psyc 101	Introduction to Psychology (3 cr.)		

Fulfills Requirement

Upper Division Humanities
Core Humanities and International or Core Soc. Science and International
Social Science
Social Science
Upper Division Social Science
Social Science
Upper Division Social Science and International
Upper Division
Core Humanities
Social Science
Upper Division
Humanities
Upper Division Humanities
Upper Division Humanities
Social Science

Professionalism, Society and Ethics Cluster:

Core 113 or 163	Globalization (3-7 cr.)		
Econ 202	Principles of Economics (3 cr)	or Econ 272	Foundations of Economic Analysis (4 cr)
Phil 103	Ethics (3 cr)		

Options-Choose One Course from the Following:

Agec 477	Law, Ethics & The Environment (3 cr.)		
Anth 462	Human Issues in International Development (3 cr.)		
Bus 321	Marketing (3 cr.)		
Larc 358	Landscape Architecture Professional Practice (2 cr.)		
Phil 434	Philosophy of Law (3 cr.)		
Phil 450	Ethics and Reasoning in Scientific Research and Practice (3 cr.)		

Fulfills Requirement

Core Humanities and International or Core Soc. Science and International
Social Science
Humanities
Upper Division Social Science
Upper Division Social Science and International
Upper Division
Upper Division
Upper Division Humanities
Upper Division Humanities

Professionalism, Society and Ethics Cluster:

Amst 301	Studies in American Culture (3 cr)	or Phil 103	Ethics (3 cr)
Core 108 or 158	Social Transformations-Market Myths		
Econ 202	Principles of Economics (3 cr)	or Econ 272	Foundations of Economic Analysis (4 cr)

Options-Choose One Course from the Following:

Anth 462	Human Issues in International Development (3 cr.)		
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Fulfills Requirement

Upper Division Humanities or Humanities
Core Social Science
Social Science
Upper Division Social Science and International