

Class Schedule - Spring 2008

Physics

100 **Thinking About Physics** credit: 1 hours.

Designed for students who want to prepare for PHYS 211 by improving their conceptual and problem solving skills. Shows how to analyze physical situations, describe them mathematically, and understand the meaning of the solutions. Examples will be drawn from material that will be covered in PHYS 211. PHYS 100 and PHYS 211 may be taken concurrently. Approval of the department is required to register. Prerequisite: Credit or concurrent registration in MATH 220 or MATH 221.

CRN	Type	Section	Time	Days	Location	Instructor
48977	discussion-recitation	A	03:00 PM - 04:50 PM	T	room 143 Loomis Laboratory	Smith, A
Departmental Approval Required						

101 **College Physics: Mech & Heat** credit: 5 hours.

Newton's Laws, work and energy, rotational motion, fluids, thermodynamics, and waves. A noncalculus-based course for students in the life sciences, preprofessional health programs, agriculture, and veterinary medicine. Credit is not given for both PHYS 101 and either PHYS 211 or PHYS 213. Prerequisite: Trigonometry.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

For students in the life sciences, pre-professional health programs, agriculture and veterinary medicine. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section.

CRN	Type	Section	Time	Days	Location	Instructor
35570	lecture	A1	01:00 PM - 01:50 PM	MW	room 151 Loomis Laboratory	Abbamonte, P
Physical Sciences, and Quant Reasoning II course.						
35571	lecture	A2	02:00 PM - 02:50 PM	MW	room 151 Loomis Laboratory	Abbamonte, P
Physical Sciences, and Quant Reasoning II course.						
41684	discussion-recitation	D2B	08:00 AM - 09:50 AM	T	room 32 Loomis Laboratory	Poore, G
Physical Sciences, and Quant Reasoning II course.						
48227	discussion-recitation	D2G	10:00 AM - 11:50 AM	T	room 32 Loomis Laboratory	Wandelt, B
Physical Sciences, and Quant Reasoning II course.						
41584	discussion-recitation	D2N	01:00 PM - 02:50 PM	T	room 32 Loomis Laboratory	Oz, M

Physical Sciences, and Quant Reasoning II course.						
46754	discussion-recitation	D2X	05:00 PM - 06:50 PM	T	room 32 Loomis Laboratory	Wojtaszek, L
Physical Sciences, and Quant Reasoning II course.						
35572	discussion-recitation	D3B	08:00 AM - 09:50 AM	W	room 32 Loomis Laboratory	Sussman, D
Physical Sciences, and Quant Reasoning II course.						
35576	discussion-recitation	D3G	10:00 AM - 11:50 AM	W	room 32 Loomis Laboratory	Oz, M
Physical Sciences, and Quant Reasoning II course.						
35578	discussion-recitation	D3S	03:00 PM - 04:50 PM	W	room 32 Loomis Laboratory	Cortes Gonzalez, A
Physical Sciences, and Quant Reasoning II course.						
35579	discussion-recitation	D3V	05:00 PM - 06:50 PM	W	room 32 Loomis Laboratory	Zheng, M
Physical Sciences, and Quant Reasoning II course.						
35583	discussion-recitation	D3Y	07:00 PM - 08:50 PM	W	room 32 Loomis Laboratory	Zheng, M
Physical Sciences, and Quant Reasoning II course.						
35590	discussion-recitation	D4B	08:00 AM - 09:50 AM	R	room 32 Loomis Laboratory	Sussman, D
Physical Sciences, and Quant Reasoning II course.						
35598	discussion-recitation	D4G	10:00 AM - 11:50 AM	R	room 32 Loomis Laboratory	Huang, P
Physical Sciences, and Quant Reasoning II course.						
35639	discussion-recitation	D4N	01:00 PM - 02:50 PM	R	room 32 Loomis Laboratory	Oz, M
Physical Sciences, and Quant Reasoning II course.						
35645	discussion-recitation	D4S	03:00 PM - 04:50 PM	R	room 32 Loomis Laboratory	Poore, G
Physical Sciences, and Quant Reasoning II course.						
35650	discussion-recitation	D4V	05:00 PM - 06:50 PM	R	room 32 Loomis Laboratory	Huang, P
Physical Sciences, and Quant Reasoning II course.						

40186	discussion-recitation	D4Y	07:00 PM - 08:50 PM	R	room 32 Loomis Laboratory	Huang, P
Physical Sciences, and Quant Reasoning II course.						
35755	discussion-recitation	D5B	08:00 AM - 09:50 AM	F	room 32 Loomis Laboratory	Siman, W
Physical Sciences, and Quant Reasoning II course.						
35756	discussion-recitation	D5G	10:00 AM - 11:50 AM	F	room 32 Loomis Laboratory	Siman, W
Physical Sciences, and Quant Reasoning II course.						
35757	discussion-recitation	D5N	01:00 PM - 02:50 PM	F	room 32 Loomis Laboratory	Cortes Gonzalez, A
Physical Sciences, and Quant Reasoning II course.						
35758	discussion-recitation	D5S	03:00 PM - 04:50 PM	F	room 32 Loomis Laboratory	Sussman, D
Physical Sciences, and Quant Reasoning II course.						
35759	laboratory	L1B	08:00 AM - 10:50 AM	M	room 64 Loomis Laboratory	Skinner, S
Physical Sciences, and Quant Reasoning II course.						
35760	laboratory	L1G	11:00 AM - 01:50 PM	M	room 64 Loomis Laboratory	Fang, K
Physical Sciences, and Quant Reasoning II course.						
35761	laboratory	L1N	02:00 PM - 04:50 PM	M	room 64 Loomis Laboratory	Mohapatra, C
Physical Sciences, and Quant Reasoning II course.						
40187	laboratory	L1Y	07:00 PM - 09:50 PM	M	room 64 Loomis Laboratory	Zhang, C
Physical Sciences, and Quant Reasoning II course.						
35762	laboratory	L2B	08:00 AM - 10:50 AM	T	room 64 Loomis Laboratory	Nichol, J
Physical Sciences, and Quant Reasoning II course.						
35763	laboratory	L2G	11:00 AM - 01:50 PM	T	room 64 Loomis Laboratory	Nguyen Hoang, N
Physical Sciences, and Quant Reasoning II course.						
46751	laboratory	L2N	02:00 PM - 04:50 PM	T	room 64 Loomis Laboratory	Miles, P

Physical Sciences, and Quant Reasoning II course.						
41683	laboratory	L3B	08:00 AM - 10:50 AM	W	room 64 Loomis Laboratory	Skinner, S
Physical Sciences, and Quant Reasoning II course.						
41583	laboratory	L3G	11:00 AM - 01:50 PM	W	room 64 Loomis Laboratory	Bezryadin, A
Physical Sciences, and Quant Reasoning II course.						
35764	laboratory	L3N	02:00 PM - 04:50 PM	W	room 64 Loomis Laboratory	Mohapatra, C
Physical Sciences, and Quant Reasoning II course.						
35765	laboratory	L3Y	07:00 PM - 09:50 PM	W	room 64 Loomis Laboratory	Zhang, C
Physical Sciences, and Quant Reasoning II course.						
35766	laboratory	L4B	08:00 AM - 10:50 AM	R	room 64 Loomis Laboratory	Nichol, J
Physical Sciences, and Quant Reasoning II course.						
35767	laboratory	L4N	01:00 PM - 03:50 PM	R	room 64 Loomis Laboratory	Miles, P
Physical Sciences, and Quant Reasoning II course.						
35768	laboratory	L4S	04:00 PM - 06:50 PM	R	room 64 Loomis Laboratory	Nguyen Hoang, N
Physical Sciences, and Quant Reasoning II course.						
35769	laboratory	L4Y	07:00 PM - 09:50 PM	R	room 64 Loomis Laboratory	Fang, K
Physical Sciences, and Quant Reasoning II course.						
35770	laboratory	L5B	08:00 AM - 10:50 AM	F	room 64 Loomis Laboratory	Fang, K
Physical Sciences, and Quant Reasoning II course.						
35771	laboratory	L5G	11:00 AM - 01:50 PM	F	room 64 Loomis Laboratory	Nguyen Hoang, N
Physical Sciences, and Quant Reasoning II course.						
35772	laboratory	L5N	02:00 PM - 04:50 PM	F	room 64 Loomis Laboratory	Skinner, S
Physical Sciences, and Quant Reasoning II course.						

48226	laboratory	L5V	05:00 PM - 07:50 PM	F	room 64 Loomis Laboratory	Zhang, C
Physical Sciences, and Quant Reasoning II course.						

102 **College Physics: E&M & Modern** credit: 5 hours.

Electric forces and fields, electric potential, electric circuits, magnetic forces and fields, geometrical optics, relativity, and modern physics. A noncalculus-based course for students in life sciences, preprofessional health programs, agriculture, and veterinary medicine. Credit is not given for both PHYS 102 and either PHYS 212 or PHYS 214. Prerequisite: PHYS 101.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

For students in the life sciences, pre-professional health programs, agriculture and veterinary medicine. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section.

CRN	Type	Section	Time	Days	Location	Instructor
35773	lecture	A1	09:00 AM - 09:50 AM	MW	room 151 Loomis Laboratory	Nathan, A
Physical Sciences, and Quant Reasoning II course.						
35774	lecture	A2	10:00 AM - 10:50 AM	MW	room 151 Loomis Laboratory	Nathan, A
Physical Sciences, and Quant Reasoning II course.						
35775	discussion-recitation	D2B	08:00 AM - 09:50 AM	T	room 137 Loomis Laboratory	Golding, I
Physical Sciences, and Quant Reasoning II course.						
35776	discussion-recitation	D2G	10:00 AM - 11:50 AM	T	room 137 Loomis Laboratory	Lu, B
Physical Sciences, and Quant Reasoning II course.						
41529	discussion-recitation	D2N	01:00 PM - 02:50 PM	T	room 137 Loomis Laboratory	Hanna, A
Physical Sciences, and Quant Reasoning II course.						
35778	discussion-recitation	D2S	03:00 PM - 04:50 PM	T	room 137 Loomis Laboratory	Suksombat, S
Physical Sciences, and Quant Reasoning II course.						
35779	discussion-recitation	D2U	03:00 PM - 04:50 PM	T	room 32 Loomis Laboratory	Hanna, A
Physical Sciences, and Quant Reasoning II course.						
35780	discussion-recitation	D2V	05:00 PM - 06:50 PM	T	room 137 Loomis Laboratory	Suksombat, S

Physical Sciences, and Quant Reasoning II course.						
35782	discussion-recitation	D2Y	07:00 PM - 08:50 PM	T	room 137 Loomis Laboratory	Suksombat, S
Physical Sciences, and Quant Reasoning II course.						
35783	discussion-recitation	D3B	08:00 AM - 09:50 AM	W	room 137 Loomis Laboratory	Christie, D
Physical Sciences, and Quant Reasoning II course.						
35784	discussion-recitation	D3G	10:00 AM - 11:50 AM	W	room 137 Loomis Laboratory	Christie, D
Physical Sciences, and Quant Reasoning II course.						
35785	discussion-recitation	D3N	01:00 PM - 02:50 PM	W	room 137 Loomis Laboratory	Bora, F
Physical Sciences, and Quant Reasoning II course.						
35786	discussion-recitation	D3P	01:00 PM - 02:50 PM	W	room 32 Loomis Laboratory	Lowrey, N
Physical Sciences, and Quant Reasoning II course.						
35787	discussion-recitation	D3S	03:00 PM - 04:50 PM	W	room 137 Loomis Laboratory	Lowrey, N
Physical Sciences, and Quant Reasoning II course.						
45283	discussion-recitation	D3V	05:00 PM - 06:50 PM	W	room 137 Loomis Laboratory	Lowrey, N
Physical Sciences, and Quant Reasoning II course.						
45284	discussion-recitation	D4B	08:00 AM - 09:50 AM	R	room 137 Loomis Laboratory	Christie, D
Physical Sciences, and Quant Reasoning II course.						
46744	discussion-recitation	D4V	05:00 PM - 06:50 PM	R	room 137 Loomis Laboratory	Hanna, A
Physical Sciences, and Quant Reasoning II course.						
46745	discussion-recitation	D4Y	07:00 PM - 08:50 PM	R	room 137 Loomis Laboratory	Lu, B
Physical Sciences, and Quant Reasoning II course.						
46747	discussion-recitation	D5B	08:00 AM - 09:50 AM	F	room 137 Loomis Laboratory	Bora, F
Physical Sciences, and Quant Reasoning II course.						

35781	discussion-recitation	D5N	01:00 PM - 02:50 PM	F	room 137 Loomis Laboratory	Bora, F
Physical Sciences, and Quant Reasoning II course.						
35777	discussion-recitation	D5S	03:00 PM - 04:50 PM	F	room 137 Loomis Laboratory	Lu, B
Physical Sciences, and Quant Reasoning II course.						
46737	laboratory	L1G	10:00 AM - 12:50 PM	M	room 258 Loomis Laboratory	Spring, B
Physical Sciences, and Quant Reasoning II course.						
35789	laboratory	L1N	01:00 PM - 03:50 PM	M	room 258 Loomis Laboratory	Spring, B
Physical Sciences, and Quant Reasoning II course.						
35790	laboratory	L1S	04:00 PM - 06:50 PM	M	room 258 Loomis Laboratory	Hoang, T
Physical Sciences, and Quant Reasoning II course.						
35791	laboratory	L1Y	07:00 PM - 09:50 PM	M	room 258 Loomis Laboratory	Hoang, T
Physical Sciences, and Quant Reasoning II course.						
35792	laboratory	L2B	08:00 AM - 10:50 AM	T	room 258 Loomis Laboratory	Qi, Z
Physical Sciences, and Quant Reasoning II course.						
35793	laboratory	L2G	11:00 AM - 01:50 PM	T	room 258 Loomis Laboratory	Lv, W
Physical Sciences, and Quant Reasoning II course.						
35794	laboratory	L2N	02:00 PM - 04:50 PM	T	room 258 Loomis Laboratory	Lv, W
Physical Sciences, and Quant Reasoning II course.						
46736	laboratory	L3G	10:00 AM - 12:50 PM	W	room 258 Loomis Laboratory	Errede, D
Physical Sciences, and Quant Reasoning II course.						
45281	laboratory	L3N	01:00 PM - 03:50 PM	W	room 258 Loomis Laboratory	Spring, B
Physical Sciences, and Quant Reasoning II course.						
45282	laboratory	L3S	04:00 PM - 06:50 PM	W	room 258 Loomis Laboratory	Inderhees, K

Physical Sciences, and Quant Reasoning II course.						
41528	laboratory	L3Y	07:00 PM - 09:50 PM	W	room 258 Loomis Laboratory	Inderhees, K
Physical Sciences, and Quant Reasoning II course.						
35796	laboratory	L4B	08:00 AM - 10:50 AM	R	room 258 Loomis Laboratory	Qi, Z
Physical Sciences, and Quant Reasoning II course.						
35797	laboratory	L4G	11:00 AM - 01:50 PM	R	room 258 Loomis Laboratory	Lv, W
Physical Sciences, and Quant Reasoning II course.						
35798	laboratory	L4N	02:00 PM - 04:50 PM	R	room 258 Loomis Laboratory	Bahr, D
Physical Sciences, and Quant Reasoning II course.						
35788	laboratory	L4Y	06:00 PM - 08:50 PM	R	room 258 Loomis Laboratory	Wadhams, S
Physical Sciences, and Quant Reasoning II course.						
35795	laboratory	L5B	08:00 AM - 10:50 AM	F	room 258 Loomis Laboratory	Wadhams, S
Physical Sciences, and Quant Reasoning II course.						
35799	laboratory	L5G	11:00 AM - 01:50 PM	F	room 258 Loomis Laboratory	Wadhams, S
Physical Sciences, and Quant Reasoning II course.						
35800	laboratory	L5N	02:00 PM - 04:50 PM	F	room 258 Loomis Laboratory	Coridan, R
Physical Sciences, and Quant Reasoning II course.						
46735	laboratory	L5V	05:00 PM - 07:50 PM	F	room 258 Loomis Laboratory	Coridan, R
Physical Sciences, and Quant Reasoning II course.						

123 **Physics Made Easy** credit: 3 hours.

Designed for students who are interested in explaining and teaching science to children at the elementary school level. A hands-on inquiry-based approach to learning is used. No math or physics background needed. Topics cover most of the National Science Education K-4 Content Standards. Students assemble and keep a science teaching tool-kit.

This course satisfies the General Education Criteria for a Physical Sciences course.

Additional course materials fee required.

CRN	Type	Section	Time	Days	Location	Instructor
38535	lecture	A	04:00 PM - 04:50 PM	W	room 151 Loomis Laboratory	Hubler, A
Physical Sciences course. Register for the lecture (A) section and for one of the lab (L) sections. PHYS 123 lab sections carry a \$50 materials fee.						
39062	laboratory	L1G	11:00 AM - 01:50 PM	M	room 234 Loomis Laboratory	Foster, G
Physical Sciences course. Physics 123 Supply 50.00 dollars.						
38538	laboratory	L1N	02:00 PM - 04:50 PM	M	room 234 Loomis Laboratory	Torigoe, E
Physical Sciences course. Physics 123 Supply 50.00 dollars.						
39064	laboratory	L2G	11:00 AM - 01:50 PM	T	room 234 Loomis Laboratory	Foster, G
Physical Sciences course. Physics 123 Supply 50.00 dollars.						
39065	laboratory	L2N	02:00 PM - 04:50 PM	T	room 234 Loomis Laboratory	Torigoe, E
Physical Sciences course. Physics 123 Supply 50.00 dollars.						

140 **How Things Work** credit: 3 hours.

Nonmathematical lecture-demonstration course for nonscience students, underscoring the generality and ubiquity of basic physical laws in understanding commonplace phenomena: musical instruments, photography, electric and electronic circuits, television, motors, engines, etc. Credit is not given to engineering majors.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

Exams are given in the evening. Register for a lecture (A) section and a discussion (D) section.

CRN	Type	Section	Time	Days	Location	Instructor
38540	lecture	A1	12:30 PM - 01:45 PM	TR	room 141 Loomis Laboratory	Grosse Perdekamp, M
Physical Sciences, and Quant Reasoning II course.						
40251	lecture	A2	02:00 PM - 03:15 PM	TR	room 141 Loomis Laboratory	Grosse Perdekamp, M
Physical Sciences, and Quant Reasoning II course.						
38595	discussion-recitation	D1B	08:00 AM - 08:50 AM	M	room 31 Loomis Laboratory	Kondov, S
Physical Sciences, and Quant Reasoning II course.						
38597	discussion-recitation	D1C	09:00 AM - 09:50 AM	M	room 31 Loomis Laboratory	Kondov, S

Physical Sciences, and Quant Reasoning II course.						
38599	discussion-recitation	D1G	10:00 AM - 10:50 AM	M	room 31 Loomis Laboratory	Kondov, S
Physical Sciences, and Quant Reasoning II course.						
38602	discussion-recitation	D1H	11:00 AM - 11:50 AM	M	room 31 Loomis Laboratory	Kondov, S
Physical Sciences, and Quant Reasoning II course.						
38604	discussion-recitation	D1J	12:00 PM - 12:50 PM	M	room 31 Loomis Laboratory	Olheiser, T
Physical Sciences, and Quant Reasoning II course.						
38606	discussion-recitation	D1N	01:00 PM - 01:50 PM	M	room 31 Loomis Laboratory	Olheiser, T
Physical Sciences, and Quant Reasoning II course.						
38609	discussion-recitation	D1P	02:00 PM - 02:50 PM	M	room 31 Loomis Laboratory	Olheiser, T
Physical Sciences, and Quant Reasoning II course.						
38612	discussion-recitation	D1S	03:00 PM - 03:50 PM	M	room 31 Loomis Laboratory	Olheiser, T
Physical Sciences, and Quant Reasoning II course.						
38615	discussion-recitation	D1U	04:00 PM - 04:50 PM	M	room 31 Loomis Laboratory	Atkinson Mora, J
Physical Sciences, and Quant Reasoning II course.						
38618	discussion-recitation	D1V	05:00 PM - 05:50 PM	M	room 31 Loomis Laboratory	Campanella, D
Physical Sciences, and Quant Reasoning II course.						
38632	discussion-recitation	D1X	06:00 PM - 06:50 PM	M	room 31 Loomis Laboratory	Campanella, D
Physical Sciences, and Quant Reasoning II course.						
38666	discussion-recitation	D1Y	07:00 PM - 07:50 PM	M	room 31 Loomis Laboratory	Campanella, D
Physical Sciences, and Quant Reasoning II course.						
38667	discussion-recitation	D1Z	08:00 PM - 08:50 PM	M	room 31 Loomis Laboratory	Campanella, D
Physical Sciences, and Quant Reasoning II course.						

38628	discussion-recitation	D2B	08:00 AM - 08:50 AM	T	room 31 Loomis Laboratory	Kondov, S
Physical Sciences, and Quant Reasoning II course.						
38629	discussion-recitation	D2C	09:00 AM - 09:50 AM	T	room 31 Loomis Laboratory	Kondov, S
Physical Sciences, and Quant Reasoning II course.						
38630	discussion-recitation	D2G	10:00 AM - 10:50 AM	T	room 31 Loomis Laboratory	Kondov, S
Physical Sciences, and Quant Reasoning II course.						
38631	discussion-recitation	D2H	11:00 AM - 11:50 AM	T	room 31 Loomis Laboratory	Kondov, S
Physical Sciences, and Quant Reasoning II course.						
41551	discussion-recitation	D3C	09:00 AM - 09:50 AM	W	room 31 Loomis Laboratory	Atkinson Mora, J
Physical Sciences, and Quant Reasoning II course.						
41552	discussion-recitation	D3G	10:00 AM - 10:50 AM	W	room 31 Loomis Laboratory	Atkinson Mora, J
Physical Sciences, and Quant Reasoning II course.						
41553	discussion-recitation	D3H	11:00 AM - 11:50 AM	W	room 31 Loomis Laboratory	Atkinson Mora, J
Physical Sciences, and Quant Reasoning II course.						
41554	discussion-recitation	D3J	12:00 PM - 12:50 PM	W	room 31 Loomis Laboratory	Atkinson Mora, J
Physical Sciences, and Quant Reasoning II course.						
41555	discussion-recitation	D3N	01:00 PM - 01:50 PM	W	room 31 Loomis Laboratory	Cisse, I
Physical Sciences, and Quant Reasoning II course.						
41557	discussion-recitation	D3P	02:00 PM - 02:50 PM	W	room 31 Loomis Laboratory	Cisse, I
Physical Sciences, and Quant Reasoning II course.						
41558	discussion-recitation	D3S	03:00 PM - 03:50 PM	W	room 31 Loomis Laboratory	Cisse, I
Physical Sciences, and Quant Reasoning II course.						
41559	discussion-recitation	D3U	04:00 PM - 04:50 PM	W	room 31 Loomis Laboratory	Cisse, I

Physical Sciences, and Quant Reasoning II course.						
41561	discussion-recitation	D3V	05:00 PM - 05:50 PM	W	room 31 Loomis Laboratory	Athanassiadou, T
Physical Sciences, and Quant Reasoning II course.						
41562	discussion-recitation	D3X	06:00 PM - 06:50 PM	W	room 31 Loomis Laboratory	Athanassiadou, T
Physical Sciences, and Quant Reasoning II course.						
44777	discussion-recitation	D3Y	07:00 PM - 07:50 PM	W	room 31 Loomis Laboratory	Athanassiadou, T
Physical Sciences, and Quant Reasoning II course.						
44778	discussion-recitation	D3Z	08:00 PM - 08:50 PM	W	room 31 Loomis Laboratory	Athanassiadou, T
Physical Sciences, and Quant Reasoning II course.						
41600	discussion-recitation	D4B	08:00 AM - 08:50 AM	R	room 31 Loomis Laboratory	McKinney, C
Physical Sciences, and Quant Reasoning II course.						
41601	discussion-recitation	D4C	09:00 AM - 09:50 AM	R	room 31 Loomis Laboratory	McKinney, C
Physical Sciences, and Quant Reasoning II course.						
41602	discussion-recitation	D4G	10:00 AM - 10:50 AM	R	room 31 Loomis Laboratory	So, L
Physical Sciences, and Quant Reasoning II course.						
41603	discussion-recitation	D4H	11:00 AM - 11:50 AM	R	room 31 Loomis Laboratory	So, L
Physical Sciences, and Quant Reasoning II course.						
44779	discussion-recitation	D4J	12:00 PM - 12:50 PM	R	room 31 Loomis Laboratory	Canning, S
Physical Sciences, and Quant Reasoning II course.						
44780	discussion-recitation	D4N	01:00 PM - 01:50 PM	R	room 31 Loomis Laboratory	Canning, S
Physical Sciences, and Quant Reasoning II course.						
44781	discussion-recitation	D4P	02:00 PM - 02:50 PM	R	room 31 Loomis Laboratory	Ruggerio, M
Physical Sciences, and Quant Reasoning II course.						

44782	discussion-recitation	D4S	03:00 PM - 03:50 PM	R	room 31 Loomis Laboratory	McKinney, C
Physical Sciences, and Quant Reasoning II course.						
44783	discussion-recitation	D4U	04:00 PM - 04:50 PM	R	room 31 Loomis Laboratory	McKinney, C
Physical Sciences, and Quant Reasoning II course.						
44784	discussion-recitation	D4V	05:00 PM - 05:50 PM	R	room 31 Loomis Laboratory	Jasti, H
Physical Sciences, and Quant Reasoning II course.						
44785	discussion-recitation	D4X	06:00 PM - 06:50 PM	R	room 31 Loomis Laboratory	Jasti, H
Physical Sciences, and Quant Reasoning II course.						
44787	discussion-recitation	D4Y	07:00 PM - 07:50 PM	R	room 31 Loomis Laboratory	Jasti, H
Physical Sciences, and Quant Reasoning II course.						
44788	discussion-recitation	D4Z	08:00 PM - 08:50 PM	R	room 31 Loomis Laboratory	Jasti, H
Physical Sciences, and Quant Reasoning II course.						
38543	discussion-recitation	D5B	08:00 AM - 08:50 AM	F	room 31 Loomis Laboratory	McKinney, C
Physical Sciences, and Quant Reasoning II course.						
38546	discussion-recitation	D5C	09:00 AM - 09:50 AM	F	room 31 Loomis Laboratory	McKinney, C
Physical Sciences, and Quant Reasoning II course.						
38548	discussion-recitation	D5G	10:00 AM - 10:50 AM	F	room 31 Loomis Laboratory	Canning, S
Physical Sciences, and Quant Reasoning II course.						
38551	discussion-recitation	D5H	11:00 AM - 11:50 AM	F	room 31 Loomis Laboratory	Ruggerio, M
Physical Sciences, and Quant Reasoning II course.						
38580	discussion-recitation	D5J	12:00 PM - 12:50 PM	F	room 31 Loomis Laboratory	Ruggerio, M
Physical Sciences, and Quant Reasoning II course.						
38583	discussion-recitation	D5N	01:00 PM - 01:50 PM	F	room 31 Loomis Laboratory	Ruggerio, M

Physical Sciences, and Quant Reasoning II course.						
38587	discussion-recitation	D5P	02:00 PM - 02:50 PM	F	room 31 Loomis Laboratory	Atkinson Mora, J
Physical Sciences, and Quant Reasoning II course.						
38590	discussion-recitation	D5S	03:00 PM - 03:50 PM	F	room 31 Loomis Laboratory	So, L
Physical Sciences, and Quant Reasoning II course.						
38592	discussion-recitation	D5U	04:00 PM - 04:50 PM	F	room 31 Loomis Laboratory	So, L
Physical Sciences, and Quant Reasoning II course.						

141 **Special Problems** credit: 1 hours.

Special problems in physics: discussions and independent study. Supplement to PHYS 140. Prerequisite: Credit or concurrent registration in PHYS 140.

CRN	Type	Section	Time	Days	Location	Instructor
10140	independent study		ARRANGED			
Instructor Approval Required To register for PHYS 141, use the PHYS 141 CRN (available from the departmental undergraduate records office) specific to the instructor with whom you have arranged to study. (You cannot register under the general CRN 10140.)						

199 **Undergraduate Open Seminar** credit: 1 to 5 hours.

Approved for both letter and S/U grading. May be repeated.

CRN	Type	Section	Time	Days	Location	Instructor
10145	independent study		ARRANGED			
Independent Study Instructor Approval Required INDEPENDENT STUDY. To register for independent study under PHYS 199, use the PHYS 199 CRN (available from the departmental undergraduate records office) specific to the instructor with whom you have arranged to work. (You cannot register under the general CRN 10145.)						
40292	laboratory-discussion	BCS	04:00 PM - 05:20 PM	T	room 257 Loomis Laboratory	Hubler, A
1 hours Behavior of Complex Systems Discovery course. EXPLORING THE BEHAVIOR OF COMPLEX SYSTEMS: CHAOS, FRACTALS AND ARTIFICIAL LIFE, 1 hour. The behavior of complicated systems with many parts will be explored with hands-on computer simulations and lab experiments. Students will experiment with lightning, turbulence, explosions, and human rhythms and use simple computer models to imitate their irregular and symmetric patterns and dynamics and will develop an intuition as to why isolated complex systems prefer harmony and symmetry whereas competing complex systems prefer chaos. Applications in business,						

engineering, and social sciences will be discussed. First Year Discovery Program Course. Registration restricted to freshmen. Students should enroll in only one Discovery course.

40293	laboratory-discussion	ESP	04:00 PM - 05:20 PM	T	room 144 Loomis Laboratory	Pitts, K
<p>1 hours Science and PseudoscienceDiscovery course.SCIENCE AND PSEUDOSCIENCE, 1 hour. The world we live in continues to develop at an amazing rate, with much of that development fueled by science and technology. Despite the overwhelming impact that scientific advances have on our society, a large number of people continue to hold irrational, unsupported beliefs in things like extrasensory perception, alien abductions and psychic crime-solvers. This one hour course will take a critical look at some of these beliefs from the standpoint of scientific inquiry and exploration. We will discuss the scientific method, how science progresses and the types of argumentative fallacies that pervade the pseudoscientific community. In addition, we will discuss examples of good science, and show how the scientific method is self-correcting. Students will have an opportunity to research paranormal claims, as well as play "devil's advocate" during in-class debates. This course is aimed at nonscientists (although science majors could benefit from the course as well) with the specific goals of teaching students how to be thoughtful, skeptical consumers of information and the importance of the scientific method. First Year Discovery Program Course. Registration restricted to freshmen. Students should enroll in only one Discovery course.</p>						
38670	lecture-discussion	HM	10:00 AM - 11:50 AM	M	room 257 Loomis Laboratory	Peng, J
<p>1 hours Honors MechanicsHONORS SEMINAR: TOPICS IN MECHANICS. PREREQUISITES: CONCURRENT REGISTRATION IN PHYS 211 AND CONSENT OF INSTRUCTOR. PHYS 199HM CAN BE USED TO SATISFY THE HONORS COMPONENT OF PHYS 211. PHYS 199HM is the honors supplement to PHYS 211 and is intended for those students intending to major in physics or who have a strong interest in the subject. Areas to be addressed include rotational and central force motion, non-inertial frames, non-linear systems and post-Newtonian mechanics. The use of simple visualization tools such as Mathematica and Excel will be encouraged.</p>						
38671	lecture-discussion	HO	01:00 PM - 02:50 PM	M	room 139 Loomis Laboratory	Peng, J
<p>1 hours Honors Electricity & MagnetismHONORS SEMINAR: TOPICS IN ELECTRICITY AND MAGNETISM. PREREQUISITES: PHYS 211, CONCURRENT REGISTRATION IN PHYS 212, AND CONSENT OF INSTRUCTOR. PHYS 199HO CAN BE USED TO SATISFY THE HONORS COMPONENT OF PHYS 212. Students investigate special topics in electricity and magnetism. Through weekly meetings (similar in format to the discussion sections of Physics 211 and 212), students will derive for themselves some of the surprising features of our post-classical physical world. For example, the need for special relativity, the existence of magnetic fields, and the origin of electromagnetic radiation are consequences of simple observations such as the constancy of the speed of light. Other topics will include the nature of Gauss' law and Maxwell's equations, potentials and superposition, amplifiers, analog computers, and the role of quantum mechanics in electrodynamics. PHYS 199HO is intended for students who have been comfortable with the level of difficulty of PHYS 211, and whose math skills are fairly strong. It allows students to confront in greater depth some of the most interesting intellectual issues in classical electrodynamics. The course will use calculus as a problem-solving tool.</p>						
38673	discussion-recitation	M1	10:00 AM - 11:50 AM	R	room 234 Loomis Laboratory	Putman, R
<p>1 hours Enrichment MechanicsSection M1 (or M2 or M3 or M4) is only for students taking Spring 2008 PHYS 211 who took Fall 2007 PHYS 100.</p>						
38563	discussion-recitation	M2	01:00 PM - 02:50 PM	R	room 234 Loomis Laboratory	Strand, N

1 hours Enrichment MechanicsSection M2 (or M1 or M3 or M4) is only for students taking Spring 2008 PHYS 211 who took Fall 2007 PHYS 100.						
38564	discussion-recitation	M3	03:00 PM - 04:50 PM	R	room 234 Loomis Laboratory	Putman, R
1 hours Enrichment MechanicsSection M3 (or M1 or M2 or M4) is only for students taking Spring 2008 PHYS 211 who took Fall 2007 PHYS 100.						
41744	discussion-recitation	M4	05:00 PM - 06:50 PM	R	room 234 Loomis Laboratory	Smith, A
1 hours Enrichment MechanicsSection M4 (or M1 or M2 or M3) is only for students taking Spring 2008 PHYS 211 who took Fall 2007 PHYS 100.						
46682	laboratory-discussion	POM	01:00 PM - 02:50 PM	F	room 6105 Engineering Sciences Bldg	Errede, S
2 hours Physics of Music & InstrumentsDiscovery course.PHYSICS OF MUSIC / PHYSICS OF MUSICAL INSTRUMENTS, 2 hours. This course will cover the following topics and will have accompanying lab demonstrations and experimental setups for hands-on direct learning experiences for the students: the physics of sound (propagation of sound waves), the physics of hearing (psycho-acoustics), the physics of music (all musical styles, and music in the natural world -- living organisms and physical processes), the physics of musical instruments (brass, wind, strings percussion, song, electronic, computer and beyond). First Year Discovery Program Course. Registration restricted to freshmen. Students should enroll in only one Discovery course.						

211 **University Physics: Mechanics** credit: 4 hours.

Newton's Laws, work and energy, static properties and fluids, oscillations, transverse waves, systems of particles, and rotations. Lectures with demonstrations, discussions and laboratory. For students in engineering, mathematics, physics and chemistry. Credit is not given for both PHYS 211 and PHYS 101. Prerequisite: Credit or concurrent registration in MATH 231.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
35801	lecture	A1	08:30 AM - 09:45 AM	MW	room 141 Loomis Laboratory	Liss, T
Physical Sciences, and Quant Reasoning II course.						
35802	lecture	A2	10:00 AM - 11:15 AM	MW	room 141 Loomis Laboratory	Liss, T
Physical Sciences, and Quant Reasoning II course.						
35803	lecture	A3	01:00 PM - 02:15 PM	MW	room 141 Loomis Laboratory	Willenbrock, S
Physical Sciences, and Quant Reasoning II course.						

35804	lecture	A4	02:30 PM - 03:45 PM	MW	room 141 Loomis Laboratory	Willenbrock, S
Physical Sciences, and Quant Reasoning II course.						
35805	discussion-recitation	D2B	08:00 AM - 09:50 AM	T	room 147 Loomis Laboratory	Dove, A
Physical Sciences, and Quant Reasoning II course.						
35806	discussion-recitation	D2C	08:00 AM - 09:50 AM	T	room 143 Loomis Laboratory	Guffin, J
Physical Sciences, and Quant Reasoning II course.						
35807	discussion-recitation	D2G	10:00 AM - 11:50 AM	T	room 147 Loomis Laboratory	Dove, A
Physical Sciences, and Quant Reasoning II course.						
35808	discussion-recitation	D2H	10:00 AM - 11:50 AM	T	room 143 Loomis Laboratory	Guffin, J
Physical Sciences, and Quant Reasoning II course.						
35809	discussion-recitation	D2N	01:00 PM - 02:50 PM	T	room 147 Loomis Laboratory	Kuroda, M
Physical Sciences, and Quant Reasoning II course.						
35810	discussion-recitation	D2P	01:00 PM - 02:50 PM	T	room 143 Loomis Laboratory	Kushnir, L
Physical Sciences, and Quant Reasoning II course.						
35812	discussion-recitation	D2S	03:00 PM - 04:50 PM	T	room 147 Loomis Laboratory	Kushnir, L
Physical Sciences, and Quant Reasoning II course.						
35814	discussion-recitation	D2V	05:00 PM - 06:50 PM	T	room 147 Loomis Laboratory	Lin, Y
Physical Sciences, and Quant Reasoning II course.						
35815	discussion-recitation	D2X	05:00 PM - 06:50 PM	T	room 143 Loomis Laboratory	Sheung, J
Physical Sciences, and Quant Reasoning II course.						
35816	discussion-recitation	D2Y	07:00 PM - 08:50 PM	T	room 147 Loomis Laboratory	Brinkley, M
Physical Sciences, and Quant Reasoning II course.						
35817	discussion-recitation	D3B	08:00 AM - 09:50 AM	W	room 147 Loomis Laboratory	Lin, Y

Physical Sciences, and Quant Reasoning II course.						
47451	discussion-recitation	D3C	08:00 AM - 09:50 AM	W	room 143 Loomis Laboratory	Lui, T
Physical Sciences, and Quant Reasoning II course.						
35818	discussion-recitation	D3G	10:00 AM - 11:50 AM	W	room 147 Loomis Laboratory	Andrews, J
Physical Sciences, and Quant Reasoning II course.						
35813	discussion-recitation	D3H	10:00 AM - 11:50 AM	W	room 143 Loomis Laboratory	Strand, N
Physical Sciences, and Quant Reasoning II course.						
35819	discussion-recitation	D3N	01:00 PM - 02:50 PM	W	room 147 Loomis Laboratory	Andrews, J
Physical Sciences, and Quant Reasoning II course.						
49446	discussion-recitation	D3P	01:00 PM - 02:50 PM	W	room 143 Loomis Laboratory	Lui, T
Physical Sciences, and Quant Reasoning II course.						
35820	discussion-recitation	D3S	03:00 PM - 04:50 PM	W	room 147 Loomis Laboratory	Sanchez, A
Physical Sciences, and Quant Reasoning II course.						
35821	discussion-recitation	D3U	03:00 PM - 04:50 PM	W	room 143 Loomis Laboratory	Brinkley, M
Physical Sciences, and Quant Reasoning II course.						
35822	discussion-recitation	D3V	05:00 PM - 06:50 PM	W	room 147 Loomis Laboratory	Lin, Y
Physical Sciences, and Quant Reasoning II course.						
35823	discussion-recitation	D3X	05:00 PM - 06:50 PM	W	room 143 Loomis Laboratory	Jones, A
Physical Sciences, and Quant Reasoning II course.						
35824	discussion-recitation	D3Y	07:00 PM - 08:50 PM	W	room 147 Loomis Laboratory	Smith, A
Physical Sciences, and Quant Reasoning II course.						
41645	discussion-recitation	D3Z	07:00 PM - 08:50 PM	W	room 137 Loomis Laboratory	Schmidt, N
Physical Sciences, and Quant Reasoning II course.						

35825	discussion-recitation	D4B	08:00 AM - 09:50 AM	R	room 147 Loomis Laboratory	Smith, A
Physical Sciences, and Quant Reasoning II course.						
35826	discussion-recitation	D4C	08:00 AM - 09:50 AM	R	room 143 Loomis Laboratory	Sanchez, A
Physical Sciences, and Quant Reasoning II course.						
35827	discussion-recitation	D4G	10:00 AM - 11:50 AM	R	room 147 Loomis Laboratory	Strand, N
Physical Sciences, and Quant Reasoning II course.						
35828	discussion-recitation	D4H	10:00 AM - 11:50 AM	R	room 143 Loomis Laboratory	Kuroda, M
Physical Sciences, and Quant Reasoning II course.						
35830	discussion-recitation	D4J	10:00 AM - 11:50 AM	R	room 137 Loomis Laboratory	Vural, D
Physical Sciences, and Quant Reasoning II course.						
35833	discussion-recitation	D4N	01:00 PM - 02:50 PM	R	room 147 Loomis Laboratory	Jones, A
Physical Sciences, and Quant Reasoning II course.						
35843	discussion-recitation	D4P	01:00 PM - 02:50 PM	R	room 143 Loomis Laboratory	Kuroda, M
Physical Sciences, and Quant Reasoning II course.						
35847	discussion-recitation	D4Q	01:00 PM - 02:50 PM	R	room 137 Loomis Laboratory	Sanchez, A
Physical Sciences, and Quant Reasoning II course.						
35850	discussion-recitation	D4R	03:00 PM - 04:50 PM	R	room 137 Loomis Laboratory	Andrews, J
Physical Sciences, and Quant Reasoning II course.						
35848	discussion-recitation	D4S	03:00 PM - 04:50 PM	R	room 147 Loomis Laboratory	Sanchez, A
Physical Sciences, and Quant Reasoning II course.						
35849	discussion-recitation	D4U	03:00 PM - 04:50 PM	R	room 143 Loomis Laboratory	Vural, D
Physical Sciences, and Quant Reasoning II course.						
35955	discussion-recitation	D5B	08:00 AM - 09:50 AM	F	room 147 Loomis Laboratory	Schmidt, N

Physical Sciences, and Quant Reasoning II course.						
46833	discussion-recitation	D5C	08:00 AM - 09:50 AM	F	room 143 Loomis Laboratory	Sheung, J
Physical Sciences, and Quant Reasoning II course.						
35959	discussion-recitation	D5G	10:00 AM - 11:50 AM	F	room 147 Loomis Laboratory	Andrews, J
Physical Sciences, and Quant Reasoning II course.						
35962	discussion-recitation	D5H	10:00 AM - 11:50 AM	F	room 143 Loomis Laboratory	Dove, A
Physical Sciences, and Quant Reasoning II course.						
35975	discussion-recitation	D5J	10:00 AM - 11:50 AM	F	room 137 Loomis Laboratory	Vural, D
Physical Sciences, and Quant Reasoning II course.						
35965	discussion-recitation	D5N	01:00 PM - 02:50 PM	F	room 147 Loomis Laboratory	Brinkley, M
Physical Sciences, and Quant Reasoning II course.						
35969	discussion-recitation	D5P	01:00 PM - 02:50 PM	F	room 143 Loomis Laboratory	Stupca, M
Physical Sciences, and Quant Reasoning II course.						
35971	discussion-recitation	D5S	03:00 PM - 04:50 PM	F	room 147 Loomis Laboratory	Stupca, M
Physical Sciences, and Quant Reasoning II course.						
48279	discussion-recitation	D5U	03:00 PM - 04:50 PM	F	room 143 Loomis Laboratory	Kushnir, L
Physical Sciences, and Quant Reasoning II course.						
35811	discussion-recitation	DUO	01:00 PM - 02:50 PM	T	room 151 Allen Residence Hall	Rose, S
Physical Sciences, and Quant Reasoning II course. Section DUO is for Residential Learning Community students only.						
35979	laboratory	L1G	10:00 AM - 11:50 AM	M	room 264 Loomis Laboratory	Neubauer, M
Physical Sciences, and Quant Reasoning II course.						
35981	laboratory	L1H	10:00 AM - 11:50 AM	M	room 232 Loomis Laboratory	Lo, K
Physical Sciences, and Quant Reasoning II course.						

35984	laboratory	L1N	01:00 PM - 02:50 PM	M	room 264 Loomis Laboratory	Knapp, A
Physical Sciences, and Quant Reasoning II course.						
35987	laboratory	L1S	03:00 PM - 04:50 PM	M	room 264 Loomis Laboratory	Lie, K
Physical Sciences, and Quant Reasoning II course.						
35992	laboratory	L1U	03:00 PM - 04:50 PM	M	room 232 Loomis Laboratory	Knapp, A
Physical Sciences, and Quant Reasoning II course.						
35995	laboratory	L1V	05:00 PM - 06:50 PM	M	room 264 Loomis Laboratory	Knapp, A
Physical Sciences, and Quant Reasoning II course.						
35999	laboratory	L1X	05:00 PM - 06:50 PM	M	room 232 Loomis Laboratory	Lu, M
Physical Sciences, and Quant Reasoning II course.						
36003	laboratory	L1Y	07:00 PM - 08:50 PM	M	room 264 Loomis Laboratory	Zhu, G
Physical Sciences, and Quant Reasoning II course.						
41649	laboratory	L1Z	07:00 PM - 08:50 PM	M	room 232 Loomis Laboratory	Lu, M
Physical Sciences, and Quant Reasoning II course.						
36006	laboratory	L2B	08:00 AM - 09:50 AM	T	room 264 Loomis Laboratory	Kerns, B
Physical Sciences, and Quant Reasoning II course.						
47452	laboratory	L2C	08:00 AM - 09:50 AM	T	room 232 Loomis Laboratory	Lu, M
Physical Sciences, and Quant Reasoning II course.						
36007	laboratory	L2G	10:00 AM - 11:50 AM	T	room 264 Loomis Laboratory	Evans, W
Physical Sciences, and Quant Reasoning II course.						
36008	laboratory	L2H	10:00 AM - 11:50 AM	T	room 232 Loomis Laboratory	Liu, Y
Physical Sciences, and Quant Reasoning II course.						
36010	laboratory	L2N	01:00 PM - 02:50 PM	T	room 264 Loomis Laboratory	Ozel, T

Physical Sciences, and Quant Reasoning II course.						
36017	laboratory	L2P	01:00 PM - 02:50 PM	T	room 232 Loomis Laboratory	Lee, K
Physical Sciences, and Quant Reasoning II course.						
36022	laboratory	L2S	03:00 PM - 04:50 PM	T	room 264 Loomis Laboratory	Ozel, T
Physical Sciences, and Quant Reasoning II course.						
36030	laboratory	L2U	03:00 PM - 04:50 PM	T	room 232 Loomis Laboratory	Hsieh, W
Physical Sciences, and Quant Reasoning II course.						
36034	laboratory	L2V	05:00 PM - 06:50 PM	T	room 264 Loomis Laboratory	Evans, W
Physical Sciences, and Quant Reasoning II course.						
36040	laboratory	L2X	05:00 PM - 06:50 PM	T	room 232 Loomis Laboratory	Liu, Y
Physical Sciences, and Quant Reasoning II course.						
36046	laboratory	L2Y	07:00 PM - 08:50 PM	T	room 264 Loomis Laboratory	Lee, K
Physical Sciences, and Quant Reasoning II course.						
46834	laboratory	L2Z	07:00 PM - 08:50 PM	T	room 232 Loomis Laboratory	Liu, Y
Physical Sciences, and Quant Reasoning II course.						
36053	laboratory	L3B	08:00 AM - 09:50 AM	W	room 264 Loomis Laboratory	Khan, S
Physical Sciences, and Quant Reasoning II course.						
36058	laboratory	L3G	10:00 AM - 11:50 AM	W	room 264 Loomis Laboratory	Lo, K
Physical Sciences, and Quant Reasoning II course.						
49447	laboratory	L3H	10:00 AM - 11:50 AM	W	room 232 Loomis Laboratory	Khan, S
Physical Sciences, and Quant Reasoning II course.						
36064	laboratory	L3N	01:00 PM - 02:50 PM	W	room 264 Loomis Laboratory	Chakraborty, S
Physical Sciences, and Quant Reasoning II course.						

36068	laboratory	L3S	03:00 PM - 04:50 PM	W	room 264 Loomis Laboratory	Lie, K
Physical Sciences, and Quant Reasoning II course.						
36073	laboratory	L3U	03:00 PM - 04:50 PM	W	room 232 Loomis Laboratory	Chakraborty, S
Physical Sciences, and Quant Reasoning II course.						
36077	laboratory	L3V	05:00 PM - 06:50 PM	W	room 264 Loomis Laboratory	Zhu, G
Physical Sciences, and Quant Reasoning II course.						
36083	laboratory	L3X	05:00 PM - 06:50 PM	W	room 232 Loomis Laboratory	Kassman, R
Physical Sciences, and Quant Reasoning II course.						
36086	laboratory	L3Y	07:00 PM - 08:50 PM	W	room 264 Loomis Laboratory	Zhu, G
Physical Sciences, and Quant Reasoning II course.						
48280	laboratory	L3Z	07:00 PM - 08:50 PM	W	room 232 Loomis Laboratory	Kassman, R
Physical Sciences, and Quant Reasoning II course.						
36089	laboratory	L4B	08:00 AM - 09:50 AM	R	room 264 Loomis Laboratory	Kerns, B
Physical Sciences, and Quant Reasoning II course.						
36093	laboratory	L4C	08:00 AM - 09:50 AM	R	room 232 Loomis Laboratory	Lie, K
Physical Sciences, and Quant Reasoning II course.						
36097	laboratory	L4G	10:00 AM - 11:50 AM	R	room 264 Loomis Laboratory	Chakraborty, S
Physical Sciences, and Quant Reasoning II course.						
38007	laboratory	L4H	10:00 AM - 11:50 AM	R	room 232 Loomis Laboratory	Xu, R
Physical Sciences, and Quant Reasoning II course.						
38008	laboratory	L4N	01:00 PM - 02:50 PM	R	room 264 Loomis Laboratory	Hsieh, W
Physical Sciences, and Quant Reasoning II course.						
38010	laboratory	L4P	01:00 PM - 02:50 PM	R	room 232 Loomis Laboratory	Xu, R

Physical Sciences, and Quant Reasoning II course.						
38012	laboratory	L4S	03:00 PM - 04:50 PM	R	room 264 Loomis Laboratory	Kerns, B
Physical Sciences, and Quant Reasoning II course.						
38015	laboratory	L4U	03:00 PM - 04:50 PM	R	room 232 Loomis Laboratory	Xu, R
Physical Sciences, and Quant Reasoning II course.						
38020	laboratory	L5B	08:00 AM - 09:50 AM	F	room 264 Loomis Laboratory	Khan, S
Physical Sciences, and Quant Reasoning II course.						
38017	laboratory	L5C	08:00 AM - 09:50 AM	F	room 232 Loomis Laboratory	Knapp, A
Physical Sciences, and Quant Reasoning II course.						
38026	laboratory	L5G	10:00 AM - 11:50 AM	F	room 264 Loomis Laboratory	Evans, W
Physical Sciences, and Quant Reasoning II course.						
38023	laboratory	L5H	10:00 AM - 11:50 AM	F	room 232 Loomis Laboratory	Hsieh, W
Physical Sciences, and Quant Reasoning II course.						

212 **University Physics: Elec & Mag** credit: 4 hours.

Coulomb's Law, electric fields, Gauss' Law, electric potential, capacitance, circuits, magnetic forces and fields, Ampere's law, induction, electromagnetic waves, polarization, and geometrical optics. Lectures with demonstrations, discussions, and laboratory. For students in engineering, mathematics, physics, and chemistry. Credit is not given for both PHYS 212 and PHYS 102. Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
38029	lecture	A1	09:00 AM - 09:50 AM	TR	room 141 Loomis Laboratory	Selen, M; Gladding, G
Physical Sciences, and Quant Reasoning II course.						
38032	lecture	A2	10:00 AM - 10:50 AM	TR	room 141 Loomis Laboratory	Selen, M; Gladding, G
Physical Sciences, and Quant Reasoning II course.						

38043	discussion-recitation	D2G	10:00 AM - 11:50 AM	T	room 139 Loomis Laboratory	Stelzer, T
Physical Sciences, and Quant Reasoning II course.						
38046	discussion-recitation	D2N	01:00 PM - 02:50 PM	T	room 139 Loomis Laboratory	Mears, P
Physical Sciences, and Quant Reasoning II course.						
38048	discussion-recitation	D2S	03:00 PM - 04:50 PM	T	room 139 Loomis Laboratory	Mears, P
Physical Sciences, and Quant Reasoning II course.						
38051	discussion-recitation	D2V	05:00 PM - 06:50 PM	T	room 139 Loomis Laboratory	McCarn, A
Physical Sciences, and Quant Reasoning II course.						
38054	discussion-recitation	D2Y	07:00 PM - 08:50 PM	T	room 139 Loomis Laboratory	Mears, P
Physical Sciences, and Quant Reasoning II course.						
38057	discussion-recitation	D3B	08:00 AM - 09:50 AM	W	room 139 Loomis Laboratory	Gan, Y
Physical Sciences, and Quant Reasoning II course.						
38059	discussion-recitation	D3G	10:00 AM - 11:50 AM	W	room 139 Loomis Laboratory	Gan, Y
Physical Sciences, and Quant Reasoning II course.						
38062	discussion-recitation	D3N	01:00 PM - 02:50 PM	W	room 139 Loomis Laboratory	Chen, Z
Physical Sciences, and Quant Reasoning II course.						
38065	discussion-recitation	D3S	03:00 PM - 04:50 PM	W	room 139 Loomis Laboratory	Chen, Z
Physical Sciences, and Quant Reasoning II course.						
38067	discussion-recitation	D3V	05:00 PM - 06:50 PM	W	room 139 Loomis Laboratory	Chen, Z
Physical Sciences, and Quant Reasoning II course.						
46838	discussion-recitation	D4B	08:00 AM - 09:50 AM	R	room 139 Loomis Laboratory	Yoscovits, Z
Physical Sciences, and Quant Reasoning II course.						
38070	discussion-recitation	D4G	10:00 AM - 11:50 AM	R	room 139 Loomis Laboratory	Yoscovits, Z

Physical Sciences, and Quant Reasoning II course.						
38074	discussion-recitation	D4N	01:00 PM - 02:50 PM	R	room 139 Loomis Laboratory	Gan, Y
Physical Sciences, and Quant Reasoning II course.						
38077	discussion-recitation	D4S	03:00 PM - 04:50 PM	R	room 139 Loomis Laboratory	Chandler, D
Physical Sciences, and Quant Reasoning II course.						
38081	discussion-recitation	D4V	05:00 PM - 06:50 PM	R	room 139 Loomis Laboratory	McCarn, A
Physical Sciences, and Quant Reasoning II course.						
38086	discussion-recitation	D4Y	07:00 PM - 08:50 PM	R	room 139 Loomis Laboratory	McCarn, A
Physical Sciences, and Quant Reasoning II course.						
38088	discussion-recitation	D5B	08:00 AM - 09:50 AM	F	room 139 Loomis Laboratory	Bouchard, C
Physical Sciences, and Quant Reasoning II course.						
38094	discussion-recitation	D5G	10:00 AM - 11:50 AM	F	room 139 Loomis Laboratory	Bouchard, C
Physical Sciences, and Quant Reasoning II course.						
38095	discussion-recitation	D5N	01:00 PM - 02:50 PM	F	room 139 Loomis Laboratory	Bouchard, C
Physical Sciences, and Quant Reasoning II course.						
38096	discussion-recitation	D5S	03:00 PM - 04:50 PM	F	room 139 Loomis Laboratory	Yoscovits, Z
Physical Sciences, and Quant Reasoning II course.						
38097	laboratory	L1B	08:00 AM - 09:50 AM	M	room 262 Loomis Laboratory	Chemla, Y
Physical Sciences, and Quant Reasoning II course.						
38098	laboratory	L1G	10:00 AM - 11:50 AM	M	room 262 Loomis Laboratory	Mulcahy, B
Physical Sciences, and Quant Reasoning II course.						
38099	laboratory	L1N	01:00 PM - 02:50 PM	M	room 262 Loomis Laboratory	Coggeshall, J
Physical Sciences, and Quant Reasoning II course.						

38100	laboratory	L1S	03:00 PM - 04:50 PM	M	room 262 Loomis Laboratory	Sekwao, S
Physical Sciences, and Quant Reasoning II course.						
38101	laboratory	L1V	05:00 PM - 06:50 PM	M	room 262 Loomis Laboratory	Messmer, S
Physical Sciences, and Quant Reasoning II course.						
38102	laboratory	L1Y	07:00 PM - 08:50 PM	M	room 262 Loomis Laboratory	Sekwao, S
Physical Sciences, and Quant Reasoning II course.						
38035	laboratory	L2B	08:00 AM - 09:50 AM	T	room 262 Loomis Laboratory	Zhang, L
Physical Sciences, and Quant Reasoning II course.						
38103	laboratory	L2G	10:00 AM - 11:50 AM	T	room 262 Loomis Laboratory	Zhang, L
Physical Sciences, and Quant Reasoning II course.						
38104	laboratory	L2N	01:00 PM - 02:50 PM	T	room 262 Loomis Laboratory	Mertens, D
Physical Sciences, and Quant Reasoning II course.						
38105	laboratory	L2S	03:00 PM - 04:50 PM	T	room 262 Loomis Laboratory	Mertens, D
Physical Sciences, and Quant Reasoning II course.						
38106	laboratory	L2V	05:00 PM - 06:50 PM	T	room 262 Loomis Laboratory	Zhang, L
Physical Sciences, and Quant Reasoning II course.						
38107	laboratory	L2Y	07:00 PM - 08:50 PM	T	room 262 Loomis Laboratory	Coggeshall, J
Physical Sciences, and Quant Reasoning II course.						
38108	laboratory	L3B	08:00 AM - 09:50 AM	W	room 262 Loomis Laboratory	Messmer, S
Physical Sciences, and Quant Reasoning II course.						
38109	laboratory	L3G	10:00 AM - 11:50 AM	W	room 262 Loomis Laboratory	Mulcahy, B
Physical Sciences, and Quant Reasoning II course.						
38110	laboratory	L3N	01:00 PM - 02:50 PM	W	room 262 Loomis Laboratory	Coggeshall, J

Physical Sciences, and Quant Reasoning II course.						
38111	laboratory	L3S	03:00 PM - 04:50 PM	W	room 262 Loomis Laboratory	Mulcahy, B
Physical Sciences, and Quant Reasoning II course.						
38115	laboratory	L3V	05:00 PM - 06:50 PM	W	room 262 Loomis Laboratory	Sekwao, S
Physical Sciences, and Quant Reasoning II course.						
38112	laboratory	L4B	08:00 AM - 09:50 AM	R	room 262 Loomis Laboratory	Cook, J
Physical Sciences, and Quant Reasoning II course.						
38113	laboratory	L4G	10:00 AM - 11:50 AM	R	room 262 Loomis Laboratory	Cook, J
Physical Sciences, and Quant Reasoning II course.						
38114	laboratory	L4N	01:00 PM - 02:50 PM	R	room 262 Loomis Laboratory	Mertens, D
Physical Sciences, and Quant Reasoning II course.						

213 Univ Physics: Thermal Physics credit: 2 hours.

Introduction to the first and second laws of thermodynamics including kinetic theory of gases, heat capacity, heat engines, introduction to entropy and statistical mechanics, and introduction to application of free energy and Boltzmann factor. Lectures with demonstrations, discussions, and laboratory. For students in engineering, mathematics, physics and chemistry. Credit is not given for both PHYS 213 and PHYS 101. Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). PHYS 213 meets only during part of the term; check the meeting dates. Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
38132	lecture	A1	08:30 AM - 09:45 AM	TR	room 151 Loomis Laboratory	Kwiat, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38135	lecture	A2	10:00 AM - 11:15 AM	TR	room 151 Loomis Laboratory	Kwiat, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38138	lecture	A3	01:00 PM - 02:15 PM	TR	room 151 Loomis Laboratory	Clegg, R

Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
40249	lecture	A4	02:30 PM - 03:45 PM	TR	room 151 Loomis Laboratory	Clegg, R
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38161	discussion-recitation	D2N	01:00 PM - 02:50 PM	T	room 242 Loomis Laboratory	Gezo, J
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38168	discussion-recitation	D2S	03:00 PM - 04:50 PM	T	room 242 Loomis Laboratory	Powell, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38174	discussion-recitation	D2U	03:00 PM - 04:50 PM	T	room 236 Loomis Laboratory	Murray, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38180	discussion-recitation	D2V	05:00 PM - 06:50 PM	T	room 242 Loomis Laboratory	Bednarz, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38185	discussion-recitation	D2X	05:00 PM - 06:50 PM	T	room 236 Loomis Laboratory	Schwenk, D
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38191	discussion-recitation	D2Y	07:00 PM - 08:50 PM	T	room 242 Loomis Laboratory	Bednarz, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
47383	discussion-recitation	D2Z	07:00 PM - 08:50 PM	T	room 236 Loomis Laboratory	Schwenk, D
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38205	discussion-recitation	D3B	08:00 AM - 09:50 AM	W	room 242 Loomis Laboratory	Gezo, J
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38164	discussion-recitation	D3C	08:00 AM - 09:50 AM	W	room 236 Loomis Laboratory	Tan, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38212	discussion-recitation	D3G	10:00 AM - 11:50 AM	W	room 242 Loomis Laboratory	Guttenberg, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						

38217	discussion-recitation	D3H	10:00 AM - 11:50 AM	W	room 236 Loomis Laboratory	Fleck, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38236	discussion-recitation	D3N	01:00 PM - 02:50 PM	W	room 242 Loomis Laboratory	Fleck, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38241	discussion-recitation	D3P	01:00 PM - 02:50 PM	W	room 236 Loomis Laboratory	Wotherspoon, T
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38245	discussion-recitation	D3S	03:00 PM - 04:50 PM	W	room 242 Loomis Laboratory	Schwenk, D
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38250	discussion-recitation	D3U	03:00 PM - 04:50 PM	W	room 236 Loomis Laboratory	Wotherspoon, T
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38272	discussion-recitation	D4G	10:00 AM - 11:50 AM	R	room 242 Loomis Laboratory	Friedman, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38273	discussion-recitation	D4N	01:00 PM - 02:50 PM	R	room 242 Loomis Laboratory	Guttenberg, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38275	discussion-recitation	D4S	03:00 PM - 04:50 PM	R	room 242 Loomis Laboratory	Wotherspoon, T
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38276	discussion-recitation	D4U	03:00 PM - 04:50 PM	R	room 236 Loomis Laboratory	Tan, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38277	discussion-recitation	D4V	05:00 PM - 06:50 PM	R	room 242 Loomis Laboratory	Murray, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38278	discussion-recitation	D4X	05:00 PM - 06:50 PM	R	room 236 Loomis Laboratory	Tan, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38279	discussion-recitation	D4Y	07:00 PM - 08:50 PM	R	room 242 Loomis Laboratory	Murray, M

Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38280	discussion-recitation	D5G	10:00 AM - 11:50 AM	F	room 242 Loomis Laboratory	Friedman, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38281	discussion-recitation	D5H	10:00 AM - 11:50 AM	F	room 236 Loomis Laboratory	Fleck, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38282	discussion-recitation	D5N	01:00 PM - 02:50 PM	F	room 242 Loomis Laboratory	Guttenberg, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38274	discussion-recitation	D5P	01:00 PM - 02:50 PM	F	room 236 Loomis Laboratory	Powell, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38283	discussion-recitation	D5S	03:00 PM - 04:50 PM	F	room 242 Loomis Laboratory	Powell, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38141	discussion-recitation	DSS	10:00 AM - 11:50 AM	T	room 242 Loomis Laboratory	Lev, B
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08. Students registering for discussion section DSS (38141) must register for lecture A1 (38132) (8:30-9:45).						
38285	laboratory	L2N	01:00 PM - 02:50 PM	T	room 164 Loomis Laboratory	Law, S
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38289	laboratory	L2P	01:00 PM - 02:50 PM	T	room 132 Loomis Laboratory	Olson, G
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38291	laboratory	L2S	03:00 PM - 04:50 PM	T	room 164 Loomis Laboratory	Olson, G
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38294	laboratory	L2U	03:00 PM - 04:50 PM	T	room 132 Loomis Laboratory	Quisno, A
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38297	laboratory	L2V	05:00 PM - 06:50 PM	T	room 164 Loomis Laboratory	Jena, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						

38300	laboratory	L2X	05:00 PM - 06:50 PM	T	room 132 Loomis Laboratory	Roy, A
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38302	laboratory	L2Y	07:00 PM - 08:50 PM	T	room 164 Loomis Laboratory	Jena, P
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38304	laboratory	L2Z	07:00 PM - 08:50 PM	T	room 132 Loomis Laboratory	Roy, A
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38306	laboratory	L3B	08:00 AM - 09:50 AM	W	room 164 Loomis Laboratory	Salovich, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38308	laboratory	L3G	10:00 AM - 11:50 AM	W	room 164 Loomis Laboratory	Salovich, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
47384	laboratory	L3H	10:00 AM - 11:50 AM	W	room 132 Loomis Laboratory	Wolin, S
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38310	laboratory	L3N	01:00 PM - 02:50 PM	W	room 164 Loomis Laboratory	Delgado, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38313	laboratory	L3P	01:00 PM - 02:50 PM	W	room 132 Loomis Laboratory	Shen, K
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38315	laboratory	L3S	03:00 PM - 04:50 PM	W	room 164 Loomis Laboratory	Delgado, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38316	laboratory	L3U	03:00 PM - 04:50 PM	W	room 132 Loomis Laboratory	Olson, G
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38317	laboratory	L4G	10:00 AM - 11:50 AM	R	room 164 Loomis Laboratory	Salovich, N
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38318	laboratory	L4H	10:00 AM - 11:50 AM	R	room 132 Loomis Laboratory	Jena, P

Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38319	laboratory	L4N	01:00 PM - 02:50 PM	R	room 164 Loomis Laboratory	Anduaga, I
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38320	laboratory	L4P	01:00 PM - 02:50 PM	R	room 132 Loomis Laboratory	Delgado, M
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38321	laboratory	L4S	03:00 PM - 04:50 PM	R	room 164 Loomis Laboratory	Anduaga, I
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38322	laboratory	L4U	03:00 PM - 04:50 PM	R	room 132 Loomis Laboratory	Wolin, S
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38323	laboratory	L4V	05:00 PM - 06:50 PM	R	room 164 Loomis Laboratory	Anduaga, I
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38324	laboratory	L4X	05:00 PM - 06:50 PM	R	room 132 Loomis Laboratory	Quisno, A
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38325	laboratory	L4Y	07:00 PM - 08:50 PM	R	room 164 Loomis Laboratory	Law, S
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38326	laboratory	L4Z	07:00 PM - 08:50 PM	R	room 132 Loomis Laboratory	Roy, A
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38327	laboratory	L5B	08:00 AM - 09:50 AM	F	room 164 Loomis Laboratory	Shen, K
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38328	laboratory	L5G	10:00 AM - 11:50 AM	F	room 164 Loomis Laboratory	Shen, K
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08.						
38284	laboratory	LSS	10:00 AM - 11:50 AM	T	room 164 Loomis Laboratory	Chiang, T
Physical Sciences, and Quant Reasoning II course.Meets 10-Mar-08 - 30-Apr-08. Students registering for lab section LSS (38284) must register for lecture A1 (38132) (8:30-9:45).						

214 **Univ Physics: Quantum Physics** credit: 2 hours.

Interference and diffraction, photons and matter waves, the Bohr atom, uncertainty principle, and wave mechanics. Lectures with demonstrations, discussions, and laboratory. For students in engineering, mathematics, physics, and chemistry. Credit is not given for both PHYS 214 and PHYS 102. Prerequisite: PHYS 212 (includes MATH 241 and PHYS 211).

This course satisfies the General Education Criteria for a Physical Sciences, and Quant Reasoning II course.

For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). PHYS 214 meets only during part of the term; check the meeting dates. Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

CRN	Type	Section	Time	Days	Location	Instructor
38329	lecture	A1	08:30 AM - 09:45 AM	TR	room 151 Loomis Laboratory	Kwiat, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38330	lecture	A2	10:00 AM - 11:15 AM	TR	room 151 Loomis Laboratory	Kwiat, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38331	lecture	A3	01:00 PM - 02:15 PM	TR	room 151 Loomis Laboratory	Clegg, R
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
40250	lecture	A4	02:30 PM - 03:45 PM	TR	room 151 Loomis Laboratory	Clegg, R
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38333	discussion-recitation	D2N	01:00 PM - 02:50 PM	T	room 242 Loomis Laboratory	Gezo, J
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38335	discussion-recitation	D2S	03:00 PM - 04:50 PM	T	room 242 Loomis Laboratory	Powell, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38336	discussion-recitation	D2U	03:00 PM - 04:50 PM	T	room 236 Loomis Laboratory	Murray, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38337	discussion-recitation	D2V	05:00 PM - 06:50 PM	T	room 242 Loomis Laboratory	Bednarz, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38338	discussion-recitation	D2X	05:00 PM - 06:50 PM	T	room 236 Loomis Laboratory	Schwenk, D

Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38339	discussion-recitation	D2Y	07:00 PM - 08:50 PM	T	room 242 Loomis Laboratory	Bednarz, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
47382	discussion-recitation	D2Z	07:00 PM - 08:50 PM	T	room 236 Loomis Laboratory	Schwenk, D
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38340	discussion-recitation	D3B	08:00 AM - 09:50 AM	W	room 242 Loomis Laboratory	Gezo, J
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38334	discussion-recitation	D3C	08:00 AM - 09:50 AM	W	room 236 Loomis Laboratory	Tan, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38342	discussion-recitation	D3G	10:00 AM - 11:50 AM	W	room 242 Loomis Laboratory	Guttenberg, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38343	discussion-recitation	D3H	10:00 AM - 11:50 AM	W	room 236 Loomis Laboratory	Fleck, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38345	discussion-recitation	D3N	01:00 PM - 02:50 PM	W	room 242 Loomis Laboratory	Fleck, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38347	discussion-recitation	D3P	01:00 PM - 02:50 PM	W	room 236 Loomis Laboratory	Wotherspoon, T
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38350	discussion-recitation	D3S	03:00 PM - 04:50 PM	W	room 242 Loomis Laboratory	Schwenk, D
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38354	discussion-recitation	D3U	03:00 PM - 04:50 PM	W	room 236 Loomis Laboratory	Wotherspoon, T
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38357	discussion-recitation	D4G	10:00 AM - 11:50 AM	R	room 242 Loomis Laboratory	Friedman, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						

38360	discussion-recitation	D4N	01:00 PM - 02:50 PM	R	room 242 Loomis Laboratory	Guttenberg, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38364	discussion-recitation	D4S	03:00 PM - 04:50 PM	R	room 242 Loomis Laboratory	Wotherspoon, T
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38369	discussion-recitation	D4U	03:00 PM - 04:50 PM	R	room 236 Loomis Laboratory	Tan, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38372	discussion-recitation	D4V	05:00 PM - 06:50 PM	R	room 242 Loomis Laboratory	Murray, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38374	discussion-recitation	D4X	05:00 PM - 06:50 PM	R	room 236 Loomis Laboratory	Tan, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38377	discussion-recitation	D4Y	07:00 PM - 08:50 PM	R	room 242 Loomis Laboratory	Murray, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38383	discussion-recitation	D5G	10:00 AM - 11:50 AM	F	room 242 Loomis Laboratory	Friedman, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38387	discussion-recitation	D5H	10:00 AM - 11:50 AM	F	room 236 Loomis Laboratory	Fleck, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38425	discussion-recitation	D5N	01:00 PM - 02:50 PM	F	room 242 Loomis Laboratory	Guttenberg, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38362	discussion-recitation	D5P	01:00 PM - 02:50 PM	F	room 236 Loomis Laboratory	Powell, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38428	discussion-recitation	D5S	03:00 PM - 04:50 PM	F	room 242 Loomis Laboratory	Powell, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38332	discussion-recitation	DSS	10:00 AM - 11:50 AM	T	room 242 Loomis Laboratory	Lev, B

Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08. Students registering for discussion section DSS (38332) must register for lecture A1 (38329) (8:30-9:45).						
38434	laboratory	L2N	01:00 PM - 02:50 PM	T	room 164 Loomis Laboratory	Law, S
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38466	laboratory	L2P	01:00 PM - 02:50 PM	T	room 132 Loomis Laboratory	Olson, G
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38471	laboratory	L2S	03:00 PM - 04:50 PM	T	room 164 Loomis Laboratory	Olson, G
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38474	laboratory	L2U	03:00 PM - 04:50 PM	T	room 132 Loomis Laboratory	Quisno, A
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38493	laboratory	L2V	05:00 PM - 06:50 PM	T	room 164 Loomis Laboratory	Jena, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38494	laboratory	L2X	05:00 PM - 06:50 PM	T	room 132 Loomis Laboratory	Roy, A
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38495	laboratory	L2Y	07:00 PM - 08:50 PM	T	room 164 Loomis Laboratory	Jena, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38496	laboratory	L2Z	07:00 PM - 08:50 PM	T	room 132 Loomis Laboratory	Roy, A
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38497	laboratory	L3B	08:00 AM - 09:50 AM	W	room 164 Loomis Laboratory	Salovich, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38498	laboratory	L3G	10:00 AM - 11:50 AM	W	room 164 Loomis Laboratory	Salovich, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
42062	laboratory	L3H	10:00 AM - 11:50 AM	W	room 132 Loomis Laboratory	Wolin, S
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						

38499	laboratory	L3N	01:00 PM - 02:50 PM	W	room 164 Loomis Laboratory	Delgado, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38501	laboratory	L3P	01:00 PM - 02:50 PM	W	room 132 Loomis Laboratory	Shen, K
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
39192	laboratory	L3S	03:00 PM - 04:50 PM	W	room 164 Loomis Laboratory	Delgado, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38504	laboratory	L3U	03:00 PM - 04:50 PM	W	room 132 Loomis Laboratory	Olson, G
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38505	laboratory	L4G	10:00 AM - 11:50 AM	R	room 164 Loomis Laboratory	Salovich, N
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38507	laboratory	L4H	10:00 AM - 11:50 AM	R	room 132 Loomis Laboratory	Jena, P
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38509	laboratory	L4N	01:00 PM - 02:50 PM	R	room 164 Loomis Laboratory	Anduaga, I
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38511	laboratory	L4P	01:00 PM - 02:50 PM	R	room 132 Loomis Laboratory	Delgado, M
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38513	laboratory	L4S	03:00 PM - 04:50 PM	R	room 164 Loomis Laboratory	Anduaga, I
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38516	laboratory	L4U	03:00 PM - 04:50 PM	R	room 132 Loomis Laboratory	Wolin, S
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38518	laboratory	L4V	05:00 PM - 06:50 PM	R	room 164 Loomis Laboratory	Anduaga, I
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38521	laboratory	L4X	05:00 PM - 06:50 PM	R	room 132 Loomis Laboratory	Quisno, A

Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38523	laboratory	L4Y	07:00 PM - 08:50 PM	R	room 164 Loomis Laboratory	Law, S
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38526	laboratory	L4Z	07:00 PM - 08:50 PM	R	room 132 Loomis Laboratory	Roy, A
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38528	laboratory	L5B	08:00 AM - 09:50 AM	F	room 164 Loomis Laboratory	Shen, K
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38533	laboratory	L5G	10:00 AM - 11:50 AM	F	room 164 Loomis Laboratory	Shen, K
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08.						
38431	laboratory	LSS	10:00 AM - 11:50 AM	T	room 164 Loomis Laboratory	Chiang, T
Physical Sciences, and Quant Reasoning II course.Meets 14-Jan-08 - 07-Mar-08. Students registering for lab section LSS (38431) must register for lecture A1 (38329) (8:30-9:45).						

280 ***Nuclear Weapons & Arms Control*** credit: 3 hours.

Beginner's-level introduction to the physics of nuclear weapons, nuclear weapon effects, delivery systems, and defenses against nuclear attack; includes presentation of current issues. Nontechnical, but about technology. Designed to assist in making informed judgments about nuclear armaments and arms control. Same as GLBL 280.

This course satisfies the General Education Criteria for a Advanced Composition course.

CRN	Type	Section	Time	Days	Location	Instructor
38668	lecture	A	02:30 PM - 03:50 PM	TR	room 144 Loomis Laboratory	Lamb, F
Advanced Composition course. Minimum of sophomore standing required. Register for the lecture (A) section and for one of the writing lab (L) sections.						
40888	laboratory	L11	10:00 AM - 10:50 AM	M	room 137 Loomis Laboratory	Dziubinski, I
Advanced Composition course.						
40889	laboratory	L12	11:00 AM - 11:50 AM	M	room 137 Loomis Laboratory	Dziubinski, I
Advanced Composition course.						
40891	laboratory	L13	12:00 PM - 12:50 PM	M	room 137 Loomis Laboratory	Cook, C

Advanced Composition course.						
40890	laboratory	L14	12:00 PM - 12:50 PM	M	room 139 Loomis Laboratory	Fischer, M
Advanced Composition course.						
40892	laboratory	L15	01:00 PM - 01:50 PM	M	room 137 Loomis Laboratory	Fischer, M
Advanced Composition course.						
40893	laboratory	L16	02:00 PM - 02:50 PM	M	room 137 Loomis Laboratory	Cho, Y
Advanced Composition course.						
40894	laboratory	L17	03:00 PM - 03:50 PM	M	room 137 Loomis Laboratory	Cho, Y
Advanced Composition course.						
40896	laboratory	L18	03:00 PM - 03:50 PM	M	room 139 Loomis Laboratory	Duchene, M
Advanced Composition course.						

325 *Mechanics and Relativity I* credit: 3 hours.

Examines kinematics and dynamics. Special relativity, Newtonian kinematics and dynamics in three dimensions, behavior of systems of particles, oscillations, transient response of oscillators, nonlinear oscillators, motion in rotating frames of reference, and rigid body dynamics. Vector analysis is developed as needed. Credit is not given for both PHYS 325 and PHYS 219. Prerequisite: Credit or concurrent registration in MATH 285 and PHYS 212.

Register for the lecture and for one of the discussion sections.

CRN	Type	Section	Time	Days	Location	Instructor
38566	lecture	A	09:00 AM - 10:20 AM	MW	room 144 Loomis Laboratory	Gollin, G
38567	discussion-recitation	D1	06:00 PM - 06:50 PM	M	room 139 Loomis Laboratory	Slavenas, M
38568	discussion-recitation	D2	07:00 PM - 07:50 PM	M	room 139 Loomis Laboratory	Slavenas, M
38569	discussion-recitation	D3	08:00 PM - 08:50 PM	M	room 139 Loomis Laboratory	Slavenas, M

326 *Mechanics and Relativity II* credit: 3 hours.

Continuation of PHYS 325. Lagrangian techniques and the calculus of variations, central force motion, scattering, coupled oscillations, the wave equation in one dimension, generalized coordinates and the Hamiltonian formulation, relativistic dynamics, Euler angles and tops, non-linear and fluid dynamics. Prerequisite: PHYS 325; credit or concurrent registration in MATH 241 or MATH 380.

Register for the lecture and one of the discussion sections.

CRN	Type	Section	Time	Days	Location	Instructor
38582	lecture	A	02:30 PM - 03:50 PM	MW	room 144 Loomis Laboratory	Lamb, S
38584	discussion-recitation	D1	06:00 PM - 06:50 PM	W	room 236 Loomis Laboratory	Kircher, K
38585	discussion-recitation	D2	07:00 PM - 07:50 PM	W	room 236 Loomis Laboratory	Kircher, K
38586	discussion-recitation	D3	08:00 PM - 08:50 PM	W	room 236 Loomis Laboratory	Kircher, K

401 **Classical Physics Lab** credit: 3 hours.

Experiments and techniques in classical mechanics and electromagnetism. Dynamics of electrical and mechanical oscillators in the linear domain. Fourier analysis of system response. Measurements of electrostatic fields, transmission lines, waves, and radiation. Investigation of electromagnetic phenomena in dielectrics, conductors, and magnetic materials. Instruction in data analysis and report writing. Graduate credit is not given to physics graduate program majors. Prerequisite: PHYS 325.

Register for the lecture and one of the laboratory sections.

CRN	Type	Section	Time	Days	Location	Instructor
38571	lecture	A	01:00 PM - 01:50 PM	M	room 158 Loomis Laboratory	Budakian, R
38572	laboratory	L1	01:00 PM - 04:50 PM	T	room 6103 Engineering Sciences Bldg	Ghosh, P
38573	laboratory	L2	01:00 PM - 04:50 PM	W	room 6103 Engineering Sciences Bldg	Sivil, D
38574	laboratory	L3	01:00 PM - 04:50 PM	R	room 6103 Engineering Sciences Bldg	Mantey, K

402 **Light** credit: 0 to 4 hours.

Wave kinematics; geometrical optics: basic concepts, ray-tracing and matrix formalism, Gaussian imaging by thick lenses, stops, apertures, and intensity relations; interference; interference spectroscopy and coherence; diffraction: Fresnel-Kirchhoff formulation, Fraunhofer case, Fresnel case, and holography; polarized light. Lectures, laboratory, and problems. 4 undergraduate hours. 3 or 4 graduate hours (3 hours without lab). Prerequisite: MATH 285; PHYS 102 (includes PHYS 101) or PHYS 214 (includes PHYS 211 and PHYS 212).

CRN	Type	Section	Time	Days	Location	Instructor
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36694	lecture	AA	01:00 PM - 02:20 PM	MW	room 136 Loomis Laboratory	Flynn, C
3 hours Graduate students (only) may enroll in the AA lecture (and no laboratory) for 3 hours credit.						
44817	lecture	BB	01:00 PM - 02:20 PM	MW	room 136 Loomis Laboratory	Flynn, C
4 hours Undergraduate and graduate students may enroll in the BB lecture and in one of the laboratory (BL) sections for 4 hours credit.						
36707	laboratory	BL1	01:00 PM - 03:50 PM	R	room 6106 Engineering Sciences Bldg	Rajaram, S
36714	laboratory	BL3	01:00 PM - 03:50 PM	F	room 6106 Engineering Sciences Bldg	Rajaram, S

403 Modern Experimental Physics credit: 2 to 5 hours.

Techniques and experiments in the physics of atoms, atomic nuclei, molecules, the solid state, and other areas of modern physical research. 3 to 5 undergraduate hours, or 2 to 4 graduate hours. First time registration must be for 5 undergraduate hours or 4 graduate hours. May be repeated for variable credit of 3 to 5 undergraduate hours or 2 to 4 graduate hours. Prerequisite: PHYS 401; concurrent registration in PHYS 486.

CRN	Type	Section	Time	Days	Location	Instructor
46820	laboratory	A	01:00 PM - 04:50 PM	TR	room 5105 Engineering Sciences Bldg	Hertzog, D; Colla, E

404 Electronic Circuits I credit: 0 to 5 hours.

The physics of semiconductor devices; theory and application of discrete and integrated devices in linear circuits; use of operational amplifiers and feedback; regulation, oscillators, and modulation; emphasizes practical experience. Lectures, problems, and laboratory. Same as CHEM 423. 5 undergraduate hours. 4 graduate hours. Offered Spring term only. Prerequisite: PHYS 401 and PHYS 435.

CRN	Type	Section	Time	Days	Location	Instructor
38598	lecture	AC	04:00 PM - 05:50 PM	MW	room 136 Loomis Laboratory	Giannetta, R
5 hours Undergraduates register for lecture AC (38598) and for one of the laboratory (L) sections.						
38600	lecture	AG	04:00 PM - 05:50 PM	MW	room 136 Loomis Laboratory	Giannetta, R
4 hours Graduate students register for lecture AG (38600) and for one of the laboratory (L) sections.						
38605	laboratory	L2	01:00 PM - 03:50 PM	TR	room 5106 Engineering Sciences Bldg	Dinsmore, R

38601	laboratory	L3	09:00 AM - 11:50 AM	WF	room 5106 Engineering Sciences Bldg	Giannetta, R
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419 **Space, Time, and Matter-ACP** credit: 3 or 4 hours.

Identical to PHYS 420 except for the additional writing component including a final term paper. Same as PHIL 419. 3 undergraduate hours. 4 graduate hours. Credit is not given for both PHYS 419 and PHYS 420. Junior standing is required. Prerequisite: One physical science course; one of PHYS 214, PHIL 101, PHIL 270, PHIL 317.

This course satisfies the General Education Criteria for a Advanced Composition course.

CRN	Type	Section	Time	Days	Location	Instructor
38575	lecture	A	01:00 PM - 02:20 PM	TR	room 144 Loomis Laboratory	Weissman, M
Advanced Composition course. 3 hours Undergraduates enroll in section A (38575). (To enroll in this course without the Advanced Composition component and for reduced credit, see PHYS 420.)						
38576	lecture	G	01:00 PM - 02:20 PM	TR	room 144 Loomis Laboratory	Weissman, M
Advanced Composition course. 4 hours Graduate students enroll in section G (38576).						

420 **Space, Time, and Matter** credit: 2 hours.

Philosophical examination of some fundamental concepts and theories of the physical world, such as time, matter, space, and geometry; interpretation of quantum theory. Graduate students write an additional paper. Same as PHIL 420. Credit is not given for both PHYS 420 and PHYS 419. Junior standing is required. Prerequisite: One physical science course; one of PHYS 214, PHIL 101, PHIL 270, PHIL 317.

CRN	Type	Section	Time	Days	Location	Instructor
43171	lecture	NAC	01:00 PM - 02:20 PM	TR	room 144 Loomis Laboratory	Weissman, M
Meets with and is the same as PHYS 419 except for carrying only 2 hours credit, requiring no final term paper and not satisfying the Advanced Composition requirement.						

427 **Thermal & Statistical Physics** credit: 4 hours.

Equilibrium thermodynamics, statistical mechanics, and kinetic theory of gases. A unified treatment is used in that the principles of heat and thermodynamics are discussed along with statistical postulates and the microscopic approach of introductory quantum mechanics. Designed primarily for advanced undergraduates. Credit is not given for both PHYS 427 and any of ME 404, CHEM 442, CHEM 444, MSE 500. Prerequisite: Two 400-level courses in physics.

CRN	Type	Section	Time	Days	Location	Instructor
36679	lecture	A	02:30 PM - 03:50 PM	TR	room 158 Loomis Laboratory	Greene, L

429 **Atmospheric Dynamics II** credit: 4 hours.
 Same as ATMS 402. See ATMS 402.

CRN	Type	Section	Time	Days	Location	Instructor
49722	lecture-discussion	A	09:00 AM - 09:50 AM	MWF	room 109 Atmospheric Sciences Bldg	Mak, M

435 **Electromagnetic Fields I** credit: 3 hours.

Static electric and magnetic fields, their interactions with electric charge and current, and their transformation properties; the effect of special relativity is incorporated. Macroscopic fields in material media are described. Prerequisite: MATH 285; PHYS 325; credit or concurrent registration in MATH 241 or MATH 380.

Register for the lecture and one of the discussion sections.

CRN	Type	Section	Time	Days	Location	Instructor
38588	lecture	A	11:00 AM - 11:50 AM	MWF	room 136 Loomis Laboratory	Wiss, J
38589	discussion-recitation	D1	07:00 PM - 07:50 PM	M	room 32 Loomis Laboratory	Singleton, M
38591	discussion-recitation	D2	08:00 PM - 08:50 PM	T	room 32 Loomis Laboratory	Singleton, M

436 **Electromagnetic Fields II** credit: 3 hours.

Concentrates on time-dependent fields. Electromagnetic induction, Maxwell's equations, electromagnetic wave propagation in various media and structures, and electromagnetic radiation from charge and current distributions are treated. The relativistic covariance of Maxwell's equations is discussed. Prerequisite: PHYS 326 and PHYS 435.

Register for a lecture and one of the discussion sections.

CRN	Type	Section	Time	Days	Location	Instructor
38593	lecture	A	11:00 AM - 11:50 AM	MWF	room 144 Loomis Laboratory	Errede, S
38594	discussion-recitation	D1	08:00 PM - 08:50 PM	M	room 32 Loomis Laboratory	Morales, J
38596	discussion-recitation	D2	07:00 PM - 07:50 PM	T	room 32 Loomis Laboratory	Morales, J

466 **Atomic Scale Simulations** credit: 3 or 4 hours.

Same as CSE 485 and MSE 485. See MSE 485.

CRN	Type	Section	Time	Days	Location	Instructor
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44676	lecture-discussion	A	02:00 PM - 03:20 PM	MW	room 4101 Materials Science and Eng Bld	Ceperley, D
3 hours This section is for Undergraduate Students only.						
44679	lecture-discussion	A1	02:00 PM - 03:20 PM	MW	room 4101 Materials Science and Eng Bld	Ceperley, D
This section is for Graduate Students only, you may choose either 3 or 4 credit hours.						

470 **Subatomic Physics** credit: 4 hours.

The nature and properties of nuclei and elementary particles, symmetries, interactions, nuclear models, tools and techniques of experimental subatomic physics, and applications to power generation, astrophysics, chemistry, medicine, and biology. Lecture-problem format. Offered Spring term only. Prerequisite: PHYS 485 or PHYS 486.

CRN	Type	Section	Time	Days	Location	Instructor
36729	lecture	A	02:30 PM - 03:50 PM	MW	room 136 Loomis Laboratory	Debevec, P

479 **Plasma and Fusion Science** credit: 3 hours.

Same as ECE 421 and NPPE 421. See NPPE 421.

CRN	Type	Section	Time	Days	Location	Instructor
34722	lecture-discussion	L	08:30 AM - 09:50 AM	TR	room 100H Talbot Laboratory	Dolan, T

486 **Quantum Physics I** credit: 4 hours.

Atomic phenomena integrated with an introduction to quantum theory; evidence for the atomic nature of matter and the properties of the Schrodinger equation, single particle solutions in one dimension, the hydrogen atom, perturbation theory, external fields, and atomic spectroscopy of outer electrons. Prerequisite: MATH 285; PHYS 214; credit or concurrent registration in MATH 415.

Register for a lecture and a discussion section.

CRN	Type	Section	Time	Days	Location	Instructor
36737	lecture	A	09:00 AM - 10:20 AM	TR	room 136 Loomis Laboratory	El-Khadra, A
36743	discussion-recitation	D1	07:00 PM - 07:50 PM	T	room 143 Loomis Laboratory	Link, W

36748	discussion-recitation	D2	08:00 PM - 08:50 PM	W	room 143 Loomis Laboratory	Link, W
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487 Quantum Physics II credit: 4 hours.

Continuation of PHYS 486. Identical particles, spectral hyperfine structure, magnetic properties of matter, atomic spectroscopy of inner electrons, high-energy photon effects, molecular binding and spectra, emission and absorption of light, and symmetry principles. Prerequisite: PHYS 486.

CRN	Type	Section	Time	Days	Location	Instructor
36752	lecture	A	09:00 AM - 10:20 AM	TR	room 158 Loomis Laboratory	Vishveshwara, S

Register for the lecture and for one of the discussion sections.

36758	discussion-recitation	D1	08:00 PM - 08:50 PM	T	room 143 Loomis Laboratory	Link, W
36762	discussion-recitation	D2	07:00 PM - 07:50 PM	W	room 143 Loomis Laboratory	Link, W

496 Intro to Physics Research credit: 3 hours.

Presents current research topics through extensive reading, writing, and oral-presentation activities. Designed for second-semester juniors interested in pursuing physics research careers and advanced physics training. Students generally become involved in a research group at this time, leading to a full-time summer research experience. 3 undergraduate hours.

This course satisfies the General Education Criteria for a Advanced Composition course.

CRN	Type	Section	Time	Days	Location	Instructor
43749	lecture	A	02:00 PM - 04:50 PM	F	room 322 Loomis Laboratory	Cooper, S

Advanced Composition course. Instructor Approval Required

497 Individual Study credit: 1 to 4 hours.

Individual study at an advanced level in a subject not covered by course offerings. Prerequisite: Consent of instructor.

Before registering for this class, students must file a project outline.

CRN	Type	Section	Time	Days	Location	Instructor
10147	independent study		ARRANGED			

Instructor Approval Required To register for PHYS 497, use the PHYS 497 CRN (available from the departmental undergraduate records office) specific to the instructor with whom you have arranged to study. (You cannot register under the general CRN 10147.)

498 **Special Topics in Physics** credit: 1 to 4 hours.

Lecture course on topics of current interest in physics. For advanced undergraduates or graduates. Prerequisites: Determined for each offering; see Schedule.

CRN	Type	Section	Time	Days	Location	Instructor
36765	lecture	BIO	10:30 AM - 11:50 AM	MW	room 158 Loomis Laboratory	Selvin, P
3 hours Intro to Biological PhysicsINTRODUCTION TO BIOLOGICAL PHYSICS. We will apply simple yet powerful ideas of physics to gain some understanding of biology. (What is the inertia of a bacteria and how does this affect its behavior?) We will begin with atoms, move to molecules, then macromolecules, then cells, and finally whole systems. For example, how do we see? The answer: photons cause the release of chemicals that create electricity. How do we move? The answer: tiny biomolecular motors break chemical bonds, using the energy to create force and motion with efficiencies that put man-made machines to shame. These motors, and indeed, much of biology at the molecular level, operate at the nanometer (one-billionth of a meter) and picoNewton (1 trillionth of a pound) scales. How can we measure such tiny things? Come find out! Prerequisite: PHYCS 211-212-213 sequence or consent of instructor. No prior biology knowledge or prerequisites, since the course includes a molecular biology primer.						
49741	lecture	BIP	10:30 AM - 11:50 AM	MW		Selvin, P
4 hours Intro to Biological PhysicsMeets with PHYS 498BIO (36765). Graduate students only, for 4 hours credit. (Undergraduates should enroll in 36765 for 3 hours credit.)						

504 **Statistical Physics** credit: 4 hours.

Single-particle distribution functions; classical and quantum mechanical systems, Boltzmann equation, virial theorem, and equations of state for gases; formal theory: ensembles, identical particles, thermodynamics of simple systems, and distribution functions; nonequilibrium problems; conservation laws and hydrodynamic equations, sound waves, and transport coefficients; plasmas, normal Fermi fluid, superfluids, and systems with internal degrees of freedom. Prerequisite: PHYS 427 and PHYS 486.

CRN	Type	Section	Time	Days	Location	Instructor
36782	lecture	A	02:30 PM - 03:50 PM	TR	room 136 Loomis Laboratory	Oono, Y

505 **Classical Electromagnetism** credit: 4 hours.

Review of Maxwell's equations followed by a relativistic formulation of the electromagnetic field and the motion of charged particles; plane and guided waves; retarded potentials; radiation from simple antennas; radiation from accelerated charged particles; synchrotron radiation, bremsstrahlung, scattering, and further topics. Prerequisite: PHYS 436 and PHYS 507.

CRN	Type	Section	Time	Days	Location	Instructor
36778	lecture	A	10:30 AM - 11:50 AM	TR	room 158 Loomis Laboratory	Eckstein, J

516 **General Relativity II** credit: 4 hours.

Continuation of PHYS 515 with emphasis on applications to astrophysics and cosmology. Relativistic stars, gravitational collapse, black holes, gravitational waves, numerical relativity, and cosmology. Same as ASTR 516. Offered in alternate Spring terms. Prerequisite: PHYS 515.

CRN	Type	Section	Time	Days	Location	Instructor
36773	lecture	A	10:30 AM - 11:50 AM	TR	room 144 Loomis Laboratory	Shapiro, S

550 **Biomolecular Physics** credit: 4 hours.

Physical concepts governing the structure and function of biological macromolecules; general properties, spatial structure, energy levels, dynamics and functions, and relation to other complex physical systems such as glasses; recent research in biomolecular physics; physical techniques and concepts from theoretical physics emphasized. Designed for students without appreciable background in biology and chemistry. Same as BIOP 550 and MCB 550. Prerequisite: CHEM 104; PHYS 485 or PHYS 487.

CRN	Type	Section	Time	Days	Location	Instructor
36779	lecture	A	10:30 AM - 11:50 AM	TR	room 136 Loomis Laboratory	Schulten, K

560 **Condensed Matter Physics I** credit: 4 hours.

Crystalline perfection, free-electron gas, screening, plasma oscillations, and dielectric response; Bloch electrons, Brillouin zones, and band structure; semiconductors, intrinsic and extrinsic, with applications; phonons, elasticity, and anharmonicity; ferromagnetism and second-order phase transitions; superconductivity. Prerequisite: PHYS 427 and PHYS 580.

CRN	Type	Section	Time	Days	Location	Instructor
36787	lecture	A	03:30 PM - 04:50 PM	MW	room 158 Loomis Laboratory	Chang, Y

563 **Phase Transitions** credit: 4 hours.

Phenomenology of phase transitions, scaling, critical behavior, and multi-criticality; Landau theory of phase transitions; renormalization group methods, including lattice models and epsilon-expansion; numerical methods; critical dynamics; selected additional topics. Prerequisite: PHYS 504.

CRN	Type	Section	Time	Days	Location	Instructor
48933	lecture	A	02:00 PM - 03:20 PM	MW	room 158 Loomis Laboratory	Goldenfeld, N

575 **Particle Physics I** credit: 4 hours.

Basic calculations in elementary particle theory. Quantum electrodynamics, quantum chromodynamics, and the Glashow-Weinberg-Salam theory of weak and electromagnetic interactions as applied to the phenomenology of particle decays and high energy reactions. Prerequisite: PHYS 570 (in exceptional circumstances, PHYS 570 may

be taken concurrently with departmental approval). Recommended (strongly): credit or concurrent registration in PHYS 582.

CRN	Type	Section	Time	Days	Location	Instructor
44743	lecture	A	02:30 PM - 03:50 PM	TR	room 322 Loomis Laboratory	Willenbrock, S

581 **Quantum Mechanics II** credit: 4 hours.

Spin and identical particles, simple many-particle systems and elements of second-quantization theory; time-dependent processes, radiative transitions, and quantization of the electromagnetic field; scattering of particles with spin; polarization; introduction to the Klein-Gordon and Dirac equations, and properties of simple relativistic systems. Prerequisite: PHYS 580.

CRN	Type	Section	Time	Days	Location	Instructor
36784	lecture	A	01:00 PM - 02:20 PM	MW	room 144 Loomis Laboratory	Phillips, P

583 **Advanced Field Theory** credit: 4 hours.

Quantization and Feynman path integral; gauge theories and renormalization; renormalization group with applications to particle physics and critical phenomena; approximation methods and recent developments. Prerequisite: PHYS 582.

CRN	Type	Section	Time	Days	Location	Instructor
36786	lecture	A	09:00 AM - 10:20 AM	MW	room 158 Loomis Laboratory	Leigh, R

597 **Individual Study** credit: 1 to 16 hours.

Individual study in a subject not covered in course offerings may be arranged for credit by registration under this number. 2 to 16 hours for full term; 1 to 8 hours for half-term. Prerequisite: Consent of instructor.

CRN	Type	Section	Time	Days	Location	Instructor
10150	independent study		ARRANGED			

Instructor Approval Required To register for PHYS 597, use the PHYS 597 CRN (available from the departmental graduate records office) specific to the instructor with whom you have arranged to study. (You cannot register under the general CRN 10150.)

598 **Special Topics in Physics** credit: 1 to 4 hours.

Lecture course in topics of current interest. Several subjects are announced in each Class Schedule. Among them are semiconductor physics, magnetic resonance, surface physics, lattice dynamics, band theory of solids, crystal imperfections, nuclear structure, field theory, elementary particle physics, advanced statistical mechanics,

plasma theory, astrophysics, atmospheric physics, group theory and applications. Prerequisite: Determined for each offering; see Class Schedule.

CRN	Type	Section	Time	Days	Location	Instructor
36793	lecture	MAP	01:00 PM - 02:20 PM	TR	room 236 Loomis Laboratory	Demarco, B
<p>4 hours Modern Atomic Physics MODERN ATOMIC PHYSICS. Activity in atomic physics has exploded during the last fifteen years because of the development of new techniques for cooling atoms to nearly zero temperature and methods for coherent control of atomic quantum states. Ultra-cold atom gases are now used as primary time and frequency standards and as the most precise inertial sensors, while experiments with trapped atomic ions are the best candidate for building a quantum computer. Cold atomic and molecular gases are also used in experiments that probe fundamental symmetries. This course will focus on the physics behind current experiments in the field of atomic, molecular, and optical physics. Topics to be covered will include atomic structure; the interaction of atoms with electro-magnetic fields; atom trapping using magnetic, electric, and optical fields; laser and evaporative cooling; and atomic collisions.</p>						
36788	lecture	MMB	01:00 PM - 02:20 PM	TR	room 158 Loomis Laboratory	Stone, M
<p>4 hours Math Methods in Physics I MATHEMATICAL METHODS IN PHYSICS. A continuation of PHYS 598MMA focusing on further core techniques widely used in the physical sciences. Emphasis is on applications, and a broad range of illustrative examples will be explored. Students do not need to have taken PHYS 598MMA. Primary topics include: complex variables (analyticity, Cauchy's theorem, residue calculus, conformal mappings, integral transforms, asymptotic techniques, Riemann surfaces); group theory in classical and quantum systems (discrete and continuous groups, representation theory, physical applications of topology); tensors in physics (Cartesian tensors, curved spaces, elementary Riemannian geometry).</p>						
36792	lecture	PNM	09:00 AM - 10:20 AM	TR	room 144 Loomis Laboratory	Aksimentiev, O
<p>4 hours Physics of Nanomachines PHYSICS OF NANOMACHINES. Nature's molecular machines operate with astonishing fidelity under tremendous environmental stress. What is their secret? Can their functionality be realized in man-made devices? Answers to these questions require understanding physics of nanoscale systems and design principles of molecular biology. Through examples from biology and engineering, this course will introduce physical principles that govern operation of nanoscale machines. It will include concepts of biomolecular structure, non-equilibrium statistical physics, hydrodynamics, tribology, polymer physics, nanoelectronics and bioengineering. Topics to be covered in the course will include biological molecular motors, nano-electro-mechanical systems, biosensors, synthetic biomolecular machines and artificial cells. This course is intended primarily for students considering careers in biological physics or nanoscale engineering. Undergraduate students should consult the instructor about the course prerequisites.</p>						

599 **Thesis Research** credit: 0 to 16 hours.
Approved for S/U grading only. May be repeated.

CRN	Type	Section	Time	Days	Location	Instructor
10154	independent study		ARRANGED			

Instructor Approval Required To register for PHYS 599, use the PHYS 599 CRN (available from the departmental graduate records office) specific to the instructor with whom you have arranged to study. (You cannot register under the general CRN 10154.)