



College of Optical Sciences Course List

Undergraduate Courses

100H.....	What is Light? Honors (3) Spring	Koshel
200	Light, Color and Vision (3) Fall & Spring.....	Nofziger
201R.....	Geometrical and Instrumental Optics I (3) Fall, P: MATH 125, 129 PHYS 141, MSE110	Schwiegerling
201L	Geometrical and Instrumental Optics Lab I (1) Fall, CR: OPTI 201R.....	Nofziger
202R.....	Geometrical and Instrumental Optics II (3) Spring, P: OPTI 201R.....	Greivenkamp
202L	Geometrical and Instrumental Optics Lab II (1) Spring, CR: OPTI 202R	Nofziger
205	Optics of Photography and Videography (3) Spring.....	Furenlid
240.....	Semiconductor Physics & Lasers (3) Spring, P: PHYS 241 MATH 223, CR: MATH 254.....	Fallahi
280	Computer Programming (1) Spring.....	Pau
299/H.....	Independent Study (1-4)/Honors (1-3) Fall & Spring.....	All Professors
300	Practical Optics (3) Fall, P: PHYS 241 [Effective Spring 2014, never offered].....	Dereniak
310	Physical Optics I (3) Fall, P: MATH 223, 254, PHYS 241, OPTI 280	Kolesik
330	Physical Optics II (3) Spring, P: OPTI 310	Ashok
340	Optical Design (3) Spring, P: OPTI 201R, 202R, 310	Takashima
340A.....	Intro to Optical Design (1) Fall, P: OPTI 201R, 202R.....	Takashima
370	Lasers and Photonics (3) Spring, P: OPTI 240, 310	Binder
380A.....	Intermediate Optics Laboratory I (1) Fall, CR: OPTI 310	Milster
380B.....	Intermediate Optics Laboratory II (1) Spring, P/CR: OPTI 330, 340, ECE 207/220	Nofziger
392	Directed Research (1-3) Fall, Spring & Summer.....	All Professors
396H.....	Optical Sciences Honors Special Topics Seminar (1) Last offered Fall 2012	Maes
399/H.....	Independent Study (1-6)/Honors(1-3) Fall, Spring & Summer	All Professors
403A.....	Mathematical Methods for Optics & Photonics (3) Spring, P: MATH 322	Mansuripur
404	MSE: Optical Spectroscopy of Materials (3) Spring, P: PHYS 141, MATH 223, MSE 110, 320	Potter
406	Radiometry, Sources and Detectors (3) Fall, P: OPTI 201R, 380B, ECE 207/220 or equiv.....	Koshel
414	Optical Instrumentation (3) Fall	Liang
414A.....	ECE: Photovoltaic Solar Energy Systems (3) Spring	Kostuk
415	Optical Specifications, Fabrication & Testing (3) Spring, P: OPTI 201R, 202R, 310, 330, 340	Schwiegerling
415L	Optical Specifications, Fabrication & Testing Lab (1) Spring CR: OPTI 415.....	Schwiegerling
416	Modern Astronomical Optics (3) Spring	Guyon/Hinz
421	Introductory Optomechanical Engineering (3) Fall.....	Burge
421L	Introductory Optomechanical Engineering Laboratory (1) Fall, CR: OPTI 421.....	Burge
423	Optomechanical Design and Analysis (3) Spring, P: OPTI 421	Burge
423L	Optomechanical Design and Analysis Lab (2) Spring, CR: OPTI 423	Burge
424A.....	Optical Systems Engineering (3) Spring	Dubin/Burge
425	MSE: Sol-Gel Science (3) Fall	Loy
428	Adaptive Optics and Imaging through Random Media (3) Fall [effective Sp 2015].....	Hart
429	Integrated Optics for Information Technology (3) Fall	Fallahi
430	Optical Communication Systems (3) Fall, P: ECE 207/220 or 360, OPTI 380A, 380B.	Cvijetic
434	MSE: Electrical and Optical Properties of Materials (3) Fall, P: PHYS 241	Potter
435	Visual Optics (3) Fall, P: OPTI 202R, 330.....	Schwiegerling
439A.....	From Photonics Innovation to the Marketplace (3) Spring P: OPTI 380A, 380B.....	Norwood
441	Introduction to Lasers (3), P: OPTI 370. Last Offered Fall 2013	Maes
447	Optical Physics (3) Spring, P: PHYS 241, MATH 223, 254, 322, OPTI 280, 310, 330	Wright
468	Introduction to Optical Spectroscopy (3) Spring, P: OPTI 340, 370, ECE207/220 or 360 [2014].....	Peng
469L	System Programming for Engineers (2) Fall, [2015].....	Peng
471A.....	Adv. Optics Laboratory (2) Fall, P: OPTI 330, 370, ECE 207/207 CR: 406	McLeod
471B.....	Adv. Optics Laboratory (2) Spring, P: OPTI 471A.....	Hua
475	Optical Thin Films (3) Spring, P: OPTI 310.....	Macleod
481A.....	Innovation, Translation and Entrepreneurship (2) Fall & Spring	TBD
484	Polarized Light and Polarimetry (3) Spring, P: OPTI 330 [effective Sp 2015].....	Chipman
485	Illumination Engineering (3) Spring, P: OPTI 406	Koshel
489(A).....	Optics Outreach (1) Fall & Spring	Erwin
490	REM: Remote Sensing for the Study of Planet Earth (3) Fall	Leeuwen
492	Directed Research (1-6) Fall, Spring & Summer.....	All Professors
493	Directed Research (1-12) Fall, Spring & Summer.....	Koshel
498H.....	Honors Thesis / Honors (3) Fall & Spring	All Professors
499/H.....	Independent Study (1-6) / Honors (3) Fall & Spring.....	All Professors



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Graduate Courses

500A/B/C Photonic Communications Engineering I (3) Fall	Kost
500D/E/F	..... Photonic Communications Engineering II (3) Spring, P, OPTI 500A/B/C.....	Kost
501	..... Electromagnetic Waves (3) Fall, P, PHYS 241, MATH 223	Mansuripur
502	..... Optical Design and Instrumentation (3) Fall, P, PHYS 142, 241	Greivenkamp
502L	..... Fundamentals of Applied Optics Lab (1) Fall, P or C, OPTI 502.....	Su/Kim/Burge
503	..... Optical Design and Instrumentation II (3) Spring, P, OPTI 502.....	Greivenkamp
503A	..... Mathematical Methods for Optics & Photonics (3) Spring.....	Mansuripur
503B	..... Software Tools for Photonics (3) Last offered Spring 2012.....	He
504	..... MSE: Optical Spectroscopy of Materials (3) Spring	Potter
505R	..... Diffraction and Interferometry (3) Spring, P, Opti 501, 512R or 604	Milster
505L	..... Fundamentals of Physical Optics Lab (1) Spring, P, OPTI 501 or 505R.....	Milster
506	..... Radiometry, Sources and Detectors (3) Fall, P, OPTI 340 or 502	Koshel
507	..... Solid-State Optics (3) Fall, P, PHYS 371 or OPTI 511R.....	Binder
508	..... Probability and Statistics in Optics (3) Spring	Kupinski
509	..... Statistical Optics (3) Fall, P, OPTI 501, 508 or consent	Ashok
510R	..... Photonics (3) Spring, P, OPTI 501, 505R, 507, 511R.....	Kieu
511R	..... Optical Physics & Lasers (3) Spring.....	Jones/Wright
511L	..... Lasers and Solid-State Devices Lab (1) Fall, P, OPTI 511R, 507.....	Jones
512R	..... Linear Systems, Fourier Transforms (3) Fall, P, MATH 223, PHYS 142, 241.....	Tyo
512L	..... Mathematical Optics Lab (1) Fall, P, OPTI 512R or 604	Kupinski
513R	..... Optical Testing (3) Spring, P, OPTI 505R.	Kim
513L	..... Optical Testing Lab (1) Fall, P, CR OPTI 513R.....	Wyant
514	..... Optical Instrumentation (3) Fall.....	Liang
514A	..... ECE: Photovoltaic Solar Energy Systems (3) Spring	Kostuk
515	..... Optical Specifications, Fabrication & Testing (3) Spring	Schwiegerling
515L	..... Optical Specifications, Fabrication & Testing Lab (1) Spring	Schwiegerling
516	..... Modern Astronomical Optics (3) Spring	Guyon/Hinz
517	..... Lens Design (4) Fall, P, OPTI 502	Sasian
518	..... Introduction to Aberrations (3) Spring, P, OPTI 502.....	Sasian
519	..... ASTR: Adaptive Optics (1) Spring.....	TBD
520	..... MSE: Optical Materials for Solid-State Laser Systems (3) Spring, P, OPTI 310.....	TBD
521	..... Introductory Opto-Mechanical Engineering (3) Fall.....	Burge
521L	..... Introductory Opto-Mechanical Engineering Laboratory (1) Fall.....	Burge
523	..... Optomechanical Design and Analysis (3) Spring, P, OPTI 521	Burge
523L	..... Optomechanical Engineering Lab (2) Spring	Burge
524A	..... Optical Systems Engineering (4) Spring	Dubin/Burge
525	..... MSE: Sol-Gel Science (3) Fall	Loy
526	..... Optical Design in Multiscale Photonic System (2) Fall, P, OPTI 502, 505R, 512R, 600A.....	Takashima
527	..... Holography and Diffractive Optics (3) Fall, P, OPTI 502, 505R	Kostuk
528	..... Adaptive Optics and Imaging through Random Media (3) Fall [effective Sp 2015]	Hart
529	..... Integrated Optics for Information Technology (3) Fall	Fallahi
530	..... Optical Communication Systems (3) Fall, P, ECE 207/220 or 360, OPTI 380A, 380B.	Cvijetic
532	..... ECE: Digital Image Analysis (3) Fall, P, ECE 340 or OPTI 512R (or instructor consent).....	Rodriguez
533	..... ECE: Digital Image Processing (3) Fall, P, ECE 340, 503, 529 or OPTI 512R	Bilgin
534	..... MSE: Advanced Topics in Optical & Electronic Materials (3).....	Potter
535	..... Visual Optics (3) Fall, P, OPTI 502, 512R.....	Schwiegerling
536	..... Introduction to Image Science (3) Spring.....	Gmitro/Barrett/Furenlid
537	..... Imaging Physics and Devices (3) Fall, P, OPTI 501, 511R or equivalent	Furenlid
539A	..... From Photonics Innovation to the Marketplace (3) Spring	Norwood
540	..... PHYS: Medical Physics (3) Fall, P, PHYS103 or 132 or OPTI 330	Watchman
541	..... Introduction to Lasers (3) P, OPTI 511R. Last offered Fall 2013	Maes
544	..... Foundations of Quantum Optics (3) Spring P, OPTI 543 of 570	Jessen
547	..... The Beam Propagation Method (3) Spring, P: OPTI 501, 512R, or 546	Kolesik
549	..... Atom Optics (2) Even Spring.....	Anderson
550	..... Quantized Matter Waves (2) Spring, P: OPTI 570 or equivalent [Effective Spring 2015].....	Wright
553	..... Nonlinear Photonics (3) Fall.....	Norwood
561 PHYS: Physics of Semiconductors (3) Spring P, OPTI 507 or PHYS 460	Binder



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567	Nanophotonics (3) Spring P,OPTI 501 [Effective Spring 2016]	McLeod
568	Introduction to Optical Spectroscopy (3) Spring	Peng
569L	System Programming for Engineers (2) Fall	Peng
570	Quantum Mechanics (3) Fall P, PHYS 371 or equiv	Anderson
571L	Optical Physics Computational Lab (1) Fall P, OPTI 570A or equiv	Anderson/Wright
573	PHYS: Atomic Spectroscopy for Experimentalists (3) Fall	Bickel
574	PHYS: Atomic Physics for Experimentalists (3) Spring, P, PHYS 573	Bickel
575	Optical Thin Films (3) Spring, Online, P, OPTI 505R	Macleod
576	Thin Film Optics (3) Fall	Falco
578	PHYS: Laser Spect & Atomic Structure (4) Fall	Cronin
581A	Innovation, Translation and Entrepreneurship (2) Fall & Spring	TBD
583	Computational Optics (3) TBD Spring	Kolesik
584	Polarized Light and Polarimetry (3) Spring [effective Sp 2015]	Chipman
585	Illumination Engineering (3) Spring	Koshel
586	Polarization in Optical Design (3) Fall, P, OPTI 502	Chipman
586L	Polarization in Optical Design (1) Fall	Smith
587L	Photonic Communications Laboratory (1) Spring	Kieu
588	Introduction to Display Science & Technology (3) Fall, P, OPTI 502	Hua
589	Optics Outreach Laboratory (1) Fall, Spring	Erwin
590	REM: Remote Sensing for the Study of Planet Earth (3) Fall	Leeuwen
595A	Current Subjects in Optics-Colloquium (1) Fall, Spring	Hart (2016)
596C	Aberrated Imaging and Propagation (3) Fall, P, OPTI 502, 509	Mahajan
596E	PHYS: Issues in Science and Technology Policy (3) Spring	TBD
597A	Optical Shop Practices (3) Spring P, OPTI 201R or 502	Sasian
597B	Technical Writing and Communication (3) Fall	Huff MacPherson
599	Independent Study (1-5)	All Professors
600A	Photonics in Lens Design (1) Fall, P, OPTI 502, 505R, 512R	Takashima
600B	Linear Algebra for Optics (1) Fall	Schwiegerling
600C	Computational Photography (1) Fall	Schwiegerling
600D	Diffraction Optical Elements- Theory and Design (1) Fall, P, OPTI 505R	Milster
600E	Diffraction Optical Elements- Fabrication and Testing (1) Fall, P, OPTI 505R, 600D	Milster
600F	Spatial Frequency Analysis of Optical Systems (1) Fall, P, OPTI 505R	Milster
600G	Laser Beams and Resonators (1) Fall P, OPTI 501, 502 [Effective Spring 2016]	Wright
604	Advanced Math. Methods for Optics (3) Fall, P, MATH 223, PHYS 142, 241	Clarkson
617	Advanced Optical Design (3) Spring, P, OPTI 517	Liang
630	Biomedical Optics & Biophotonics (3) Fall	Gmitro/Utzinger/Barton
632	ECE: Advanced Optical Communication Systems (3) Spring	Djordjevic
634	ECE: Computational Sensing: Spectroscopy (3) Last offered Spring 2011	Gehm
636	Noise in Imaging Systems (3) Fall P, OPTI 508, 512R	Kupinski
637	Principles of Image Science (3) Spring P, OPTI 512R, 508	Clarkson
638	Advanced Medical Imaging (3) Spring, P, OPTI 512R or equivalent	Gmitro/Furenlid
646	Introduction to Quantum Information and Computation (3) Even Years Fall	Jessen
656A	PTYS: Atmospheric Radiation and Remote Sensing A (3) Odd Springs	Griffith
656B	ATMO: Atmospheric Radiation and Remote Sensing B (3) Spring	Kursinski
671	Advanced Optical Networks (3) Spring	Cvijetic
677	Microfabrication in Opto-Electronics (2) Fall	Fallahi
696A	Advanced Lens Design (2) Fall, P: OPTI 517	Sasian
696D	Practical Optics: Engineering Optical Systems (1) Fall	Dubin/Burge
792	Directed Introductory Graduate Research (1-3)	All Professors
900	Research (1-8)	All Professors
909	Master's Report (1-3)	All Professors
910	Thesis (1-8)	All Professors
920	Dissertation (1-9)	All Professors