



Wyant College of Optical Sciences Course List

Undergraduate Courses

100H.....	What is Light? Honors (3) Spring	Koshel
170B1.....	Optics and the Fourth Industrial Revolution (3) Fall	Kost
200.....	Light, Color and Vision (3) Fall & Spring	Nofziger
201R.....	Geometrical and Instrumental Optics I (3) Fall, P: MATH 125, 129 PHYS 141, MSE110.....	Nofziger
201L.....	Geometrical and Instrumental Optics Lab I (1) Fall, CR: OPTI 201R.....	Nofziger
202R.....	Geometrical and Instrumental Optics II (3) Spring, P: OPTI 201R.....	Brady
202L.....	Geometrical and Instrumental Optics Lab II (1) Spring, CR: OPTI 202R.....	Nofziger
205.....	Optics of Photography and Videography (3) Spring.....	Furenlid
210.....	Physical Optics I (3) Spring, P: MATH 223, 254, PHYS 241, OPTI 280	Wilson
280.....	Computer Programming (1) Spring	Pau
299/H.....	Independent Study (1-4) / Honors (1-3) Fall & Spring.....	All Professors
306.....	Radiometry, Sources and Detectors (3) Fall,P: OPTI 201R, 380A, and ECE 207/220, OPTI 360, or OPTI 380B.....	Koshel
330.....	Physical Optics II (3) Spring, P: OPTI 310, MATH 322	Kolesik
340.....	Optical Design (3) Spring, P: OPTI 201R, 202R, 310	Takashima
340A.....	Intro to Optical Design (1) Fall, P: OPTI 201R & 201L, 202R & 202L.....	Takashima
341.....	Semiconductor Physics & Lasers (3) Fall, P: PHYS 241 MATH 223, CR: MATH 254	Fallahi
345.....	Quantum Mechanics and Optical Physics (3) Spring: OPTI 341 (B or better).....	Wright
370.....	Lasers and Photonics (3) Spring, P: OPTI 240, 310, MATH 223	Binder
380A.....	Intermediate Optics Laboratory I (1) Fall, CR: OPTI 310; OPTI 240 suggested	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
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
414.....	Optical Instrumentation (3) Spring, P: OPTI340	Staff
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.....	Staff
416.....	Modern Astronomical Optics (3) Spring.....	Guyon
420.....	BME: Biophotonics (3) Spring, P or CR:BME 330 or OPTI 310 (can be concurrent), Junior status or higher	Su
421.....	Introductory Optomechanical Engineering (3) Fall	Chalifoux
421L.....	Introductory Optomechanical Engineering Laboratory (1) Fall, CR: OPTI 421	Staff
423.....	Optomechanical Design and Analysis (3) Spring, P: OPTI 421	Chalifoux
423L.....	Optomechanical Design and Analysis Lab (2) Spring, CR: OPTI 423	Staff
424A.....	Optical Systems Engineering (3) Spring P: senior status only	Dubin
425.....	MSE: Sol-Gel Science (3) Fall	Loy
428.....	Adaptive Optics and Imaging through Random Media (3) Fall.....	Staff
429.....	Integrated Optics for Information Technology (3) Fall	Fallahi
430.....	Optical Communication Systems (3) Fall, P: OPTI 360, 380A, & 380B or ECE 207 & 220	Fan
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
447.....	Optical Physics (3) Spring, P: PHYS 241, MATH 223, 254, 322, OPTI 280, 210, 330	Wright
468.....	Introduction to Optical Spectroscopy (3) Spring, P: OPTI 340, 370, ECE207/220 or 360.....	Peng
469L.....	System Programming for Engineers (2) Fall	Peng
471A.....	Adv. Optics Laboratory (2) Fall, P: (OPTI 330 & 370) and (ECE 207 or ECE 220).....	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	Staff
484.....	Polarized Light and Polarimetry (3) Spring, P: OPTI 330.....	Mer. Kupinski
485.....	Illumination Engineering (3) Spring, P: OPTI 201R, OPTI 406	Koshel
489.....	Optics Outreach (1) Fall & Spring.....	Staff
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.....	All Professors
495B.....	Information in a Photon (3) Spring.....	Guha
498H.....	Honors Thesis / Honors (3) Fall & Spring.....	All Professors
499/H.....	Independent Study (1-6) / Honors(1-3) Fall, Spring	All Professors



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Graduate Courses

500A/B/C.....	Photonic Communications Engineering I (3) Fall	Staff
500D/E/F.....	Photonic Communications Engineering II (3) Spring, P, OPTI 500A/B/C.....	Staff
501.....	Electromagnetic Waves (3) Fall, P, PHYS 241, MATH 223	Mansuripur
502.....	Optical Design and Instrumentation (3) Fall, P, PHYS 142, 241	Schwiegerling
502L.....	Fundamentals of Applied Optics Lab (1) Fall, P or C, OPTI 502.....	D. Kim
503.....	Optical Design and Instrumentation II (3) Spring, P, OPTI 502.....	Liang
503A.....	Mathematical Methods for Optics & Photonics (3) Spring.....	Mansuripur
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 502, suggested OPTI 506.....	Driggers
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
511L.....	Lasers and Solid-State Devices Lab (1) Fall, P, OPTI 511R, 507.....	Wilson
512R.....	Linear Systems, Fourier Transforms (3) Fall, P, MATH 223, PHYS 142, 241.....	Ashok
512L.....	Mathematical Optics Lab (1) Fall, P, OPTI 512R or 604	Mat. Kupinski
513R.....	Optical Testing (3) Spring, P, OPTI 505R.	D. Kim
513L.....	Optical Testing Lab (1) Fall, P, CR OPTI 513R.....	D. Kim
514.....	Optical Instrumentation (3) Fall	Staff
514A.....	ECE: Photovoltaic Solar Energy Systems (3) Spring	Kostuk
516.....	Modern Astronomical Optics (3) Spring.....	Guyon
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.....	Staff
520.....	BME: Biophotonics (3) Spring	Su
521.....	Introductory Opto-Mechanical Engineering (3) Fall.....	Chalifoux
521L.....	Introductory Opto-Mechanical Engineering Laboratory (1) Fall, P or C, 521	Staff
522.....	BME: Contrast Agents, Molecular Imaging, and Kinetics (3), Spring	Kuo, Avery, Matsunaga
523.....	Optomechanical Design and Analysis (3) Spring, P, OPTI 521	Chalifoux
523L.....	Optomechanical Engineering Lab (2) Spring	Chalifoux
524A.....	Optical Systems Engineering (4) Spring	Dubin
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	Takashima
528.....	Adaptive Optics and Imaging through Random Media (3) Fall.....	Staff
529.....	Integrated Optics for Information Technology (3) Fall	Fallahi
530.....	Optical Communication Systems (3) Fall, P, ECE 207/220 or 360, OPTI 380A, 380B.	Fan
532.....	ECE: Digital Image Analysis (3) Fall, P, ECE 340 or OPTI 512R (or instructor consent).....	Staff
533.....	ECE: Digital Image Processing (3) Fall, P, ECE 340, 503, 529 or OPTI 512R	Staff
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/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.....	Laser Physics (2) Fall, P, OPTI 511R.....	Jones
541A.....	Introduction to Laser Physics (1) Fall.....	Jones
541B.....	Laser Systems and Applications (1) Fall.....	Jones
541C.....	Ultrafast Optics (1) Fall.....	Jones
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
551.....	Computational Optics: Light-matter interactions (1) Spring, P: OPTI 501	Kolesik
553.....	Nonlinear Photonics (3) Fall	Norwood



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556	Computational Imaging (3) Fall	Brady
557	Laser Engineering and Applications (2) Spring, OPTI 345 or 511R suggested	Polynkin
560	Quantum Nanophotonics (3) Spring	Fan
561	PHYS: Physics of Semiconductors (3) Spring P, OPTI 507 or PHYS 460	Binder
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 equivalent	Anderson
571L	Optical Physics Computational Lab (1) Fall P, OPTI 570A or equivalent	Wright
574	Physical Optics Modeling (3) Fall	Schwiegerling
578	PHYS: Laser Spectroscopy & 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	Mer. Kupinski
585	Illumination Engineering (3) Spring	Koshel
586	Polarization in Optical Design (3) Fall, P, OPTI 502	Mer. Kupinski
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	Staff
590	REM: Remote Sensing for the Study of Planet Earth (3) Fall	Leeuwen
595A	Current Subjects in Optics-Colloquium (1) Fall, Spring	Staff
595B	Information in a Photon (3) Spring	Guha
597A	Optical Shop Practices (3) Spring P, OPTI 201R or 502	Sasian
597B	Technical Writing and Communication (3) Fall	Su
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	Wilson
600K	Cavity Optomechanics I (3) Spring P, 570	Wilson
600L	Cavity Optomechanics II (3) Spring P, 570, 600K	Wilson
604	Advanced Math. Methods for Optics (3) Fall, P, MATH 223, PHYS 142, 241	Staff
613	Introduction to Infrared Systems (3) Spring, P, OPTI 505R, 512R	Driggers
617	Advanced Optical Design (3) Spring, P, OPTI 517	Liang
630	Biomedical Optics & Biophotonics (3) Spring	Kang
636	Noise in Imaging Systems (3) Fall P, OPTI 508, 512R	Mat. Kupinski
637	Principles of Image Science (3) Spring P, OPTI 512R, 508	Mat. Kupinski
638	Advanced Medical Imaging (3) Spring, P, OPTI 512R or equivalent	Witte
639	Image Science for Oncology (3) Fall	Barrett, Henscheid
646	Introduction to Quantum Information and Computation (3) Even Years Fall	Jessen
647	Photonic Quantum Information Processing (3) Fall, P, OPTI 511R or 544	Gagatsos
656A	PTYS: Atmospheric Radiation and Remote Sensing A (3) Odd Springs	Dong
656B	ATMO: Atmospheric Radiation and Remote Sensing B (3) Spring	Dong
671	Advanced Optical Networks (3) Spring	Staff
677	Microfabrication in Opto-Electronics (2) Spring	Fallahi
696A	Advanced Lens Design (2) Fall, P: OPTI 517	Sasian
696D	Practical Optics: Engineering Optical Systems (1) Fall	Dubin
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