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 (4) Fall, P: MATH 125, 129 PHYS 141, MSE110 ..... Sawyer
201L .....Geometrical and Instrumental Optics Lab I (1) Fall, CR: OPTI 201R ..... Nofziger
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) ..... Seyler
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 ..... Sasian
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 ..... STAFF
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 . ..... Kieu
434 .....MSE: Electrical and Optical Properties of Materials (3) Fall, P: PHYS 241 ..... Potter
435 .....Visual Optics (3) Fall, P: OPTI 202R, 330 ..... STAFF
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) ..... ElKabbash
471B.....Adv. Optics Laboratory (2) Spring, P: OPTI 471A ..... Hua
475 .....Thin Film Optics and Photonics (3) Fall, P: OPTI 310 or 505R ..... Norwood
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 306 ..... Koshel
489 .....Optics Outreach (1) Fall & Spring ..... Koshel
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 ..... STAFF
498H.....Honors Thesis / Honors (3) Fall & Spring ..... All Professors
499/H.....Independent Study (1-6) / Honors(1-3) Fall, Spring ..... All Professors

Graduate Courses

500A/B/C.....Photonic Communications Engineering I (3) Fall ..... Staff

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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 .....Guzman
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 .....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 .....Seyler
512R.....Linear Systems, Fourier Transforms (3) Fall, P, MATH 223, PHYS 142, 241 .....Mer. Kupinski
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 .....Chalifoux
522 .....BME: Contrast Agents, Molecular Imaging, and Kinetics (3), Spring .....Kuo, Avery, Matsunaga
523 .....Optomechanical Design and Analysis (3) Spring, P, OPTI 521 .....Guzman
523L .....Optomechanical Engineering Lab (2) Spring .....STAFF
524A.....Optical Systems Engineering (4) Spring .....STAFF
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. .....Kieu
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 .....STAFF
536 .....Introduction to Image Science (3) Spring .....Willomitzer
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 570 .....Jessen
547 .....The Beam Propagation Method (3) Spring, P: OPTI 501, 512R, or 546 .....Kolesik
549 .....Atom Optics (2) Spring, P: OPTI 570 .....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
556A.....Computational Imaging (3) Fall .....Brady
556B.....Computational Photography (3) Spring .....Brady
557 .....Laser Engineering and Applications (2) Spring, OPTI 345 or 511R suggested .....Polynkin

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560 .....Quantum Nanophotonics (3) Spring ..... Elkabbash
561 .....PHYS: Physics of Semiconductors (3) Spring P, OPTI 507 or PHYS 460 .....Binder
567 .....Nanophotonics (3) Fall P, OPTI 50.....STAFF
569L .....System Programming for Engineers (2) Fall .....Peng
570 .....Quantum Mechanics (3) Fall .....Panda
572 .....Quantum Photonic Integrated Circuits (3) Spring P, OPTI 501 and 511R recommended .....STAFF
578 .....PHYS: Laser Spectroscopy & Atomic Structure (4) Fall..... Cronin
581A.....Innovation, Translation and Entrepreneurship (2) Fall & Spring .....STAFF
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.....Koshel
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.....STAFF
596-002.....Computational Imaging and Machine Vision Seminar (3) Spring ..... Willomitzer
596-004.....Open Quantum Systems (3) Spring, P, OPTI 570 recommended.....Sinha
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.....STAFF
600D.....Diffractive Optical Elements- Theory and Design (1) Fall, P, OPTI 505R ..... Milster
600E.....Diffractive 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) Fall, 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 .....STAFF
646 .....Introduction to Quantum Information and Computation (3) Even Years Fall.....Jessen
647A.....Photonic Gaussian Information (3) Fall, P, Recommended OPTI 570.....Soh
647B.....Photonic Quantum Information Processin (3) Spring .....Soh
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 .....STAFF
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