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 ..... McLeod
336.....Introduction to Imaging (3) Fall, P: 201R..... Bai
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 ..... Bai
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 ..... Guzman
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

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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	Guzman/Sawyer
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	Spencer
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	Laser Beam Control and Propagation (3) Fall, P, OPTI 505R	Spencer
519	Computational Wave Optics Lab (1) Fall, P, OPTI 505R	Spencer
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	Guzman
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	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	Ashok
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	Bai
547	The Beam Propagation Method (3) Spring, P: OPTI 501, 512R, or 546	Kolesik
549	Atom Optics (2) Spring, P: OPTI 570	Panda
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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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
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..... McLeod
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
574 .....Physical Optics Modeling (3) Fall, P Recommended: OPTI 505, and either 503 or OPTI 512R.....Fest/Pfisterer
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) Spring .....Smith
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.....Advanced Quantum Optics (3) Fall, P, OPTI 570.....Sinha
596-007.....Quantum Optics Toolbox Pathfinder (1).....Wilson
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
629 .....Advanced Microscopy in Biomedicien (3) Spring .....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 .....Zhou
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

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