

### ACADEMIC FREEDOM STATEMENT

Brooks Institute is committed to protecting and encouraging the principles of academic freedom. Academic freedom provides the foundation for scholarship, teaching and learning, and reflects the Institutes fundamental mission to promote collaboration, critical thinking, and creativity. Essential elements for the intellectual vitality of a college include: the ability to exchange ideas and concepts freely, to explore and disseminate new knowledge, and to speak openly as a professional and as a private citizen. All are encouraged to promote a learning environment that provides opportunities for the free exchange of ideas between faculty, staff and students.

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### Programmatic Student Learning Outcomes/Mission

The mission of the Bachelor of Fine Arts Degree in Professional Photography program is to prepare students for careers in the field of professional photography through a philosophy of “learning by doing.” The program is designed to educate all students in basic and intermediate photographic skills through a shared Lower Division. Students develop a creative style and visual problem-solving skills while engaging in specialized market areas and techniques in the Upper Division. The program integrates liberal arts, professional business practices and ethics with a core photography and media production curriculum that prepares students for the creative, business, and technical challenges of a professional photography career.

### Program Description

The 120 semester credit Bachelor of Fine Arts in Professional Photography prepares students for careers in the field of professional photography. The cross-platform philosophy combined with the experiential learning provided by professional photographers/ instructors provides a unique and innovative technical education that develops graduates with a creative style and unique visual problem-solving skills. The program combines 75 semester credits of core photography classes, including business course work, and 45 semester credits of general education studies.

Upon Completion of the Professional Photography Program, students should be able to:

- Effectively use contemporary photographic tools. (Visual Literacy, Adept)
  - Effectively use photographic media and asset management software. (Adept)
  - Effectively collaborate to accomplish professional goals. (Collaboration)
  - Develop and implement an effective marketing program. (Problem Solver)
  - Understand professional business and ethics standards. (Ethics)
  - Apply creative and sophisticated visual solutions to the challenges of producing visual media. (Problem Solver, Visual Literacy)
  - Apply effective professional communication skills. (Communication)
  - Develop a lifelong learning pattern. (Adept)
  - Understand the principals of business management. (Problem Solver, Adept)
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**Course Title**                      **Scientific Photography**

**Course Code**                      **CMO323**

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Credit Hours                      3 Semester

Contact Hours                      3 Hours

Prerequisites                      PTT360 or VJN292

# Course Syllabus

Course Type	Lecture
Instructor	TBD
Email	TBD
Telephone	TBD
Term Start/End Date	TBD

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## Course Description

This is an introductory course to the broad field of scientific imaging. This course covers the special techniques necessary to utilize photography as a tool for the scientist and researcher. Emphasis is placed on recording effects that are normally invisible to the human eye. Special optical apparatus as well as common instruments such as the microscope and telescope are coupled to the camera in order to extend human vision.

## Learning Objectives

Upon completion of this course the student should be able to:

- Apply photographic analysis techniques using magnification optics (“Effectively use contemporary photographic tools”)
  - Apply an understanding of the different parts of the electromagnetic spectrum (such as infrared and ultraviolet) to analytic and illustrative photographic applications
  - Assess photographic systems based on the amount of data that the system is capable of delivering and choose the appropriate system for particular applications (“Effectively use contemporary photographic tools”)
  - Apply visual communication aesthetics to create compelling communication of the subjects photographed
  - “Effectively collaborate to accomplish professional goals” - related to photographic methods research and presentation of findings
  - Demonstrate an understanding of the assignment/project cycle through completion of project invoices (“Understand the principals of business management”)
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Required Textbook(s) Frankel, Felice. *Envisioning science*. Boston: MIT Press. c.2004 Print. ISBN-13: 9780262562058

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## Course Outline

**Week 1:** Course overview: Exploration, experimentation and visual discovery. Projects list. Introduction to analytical photography and scientific methods. Introduction to infrared and ultraviolet photography. Introduction to photomicroscopy.

**Week 2:** Introduction to ultraviolet photography, Topics include human skin rendition, questioned documents and flower patterns, ultraviolet fluorescence. Topics include visual enhancement of objects with fluorescent dyes and tracers Filtration for scientific photography techniques. Group presentation project. Discussion of project photos.

**Week 3:** Slide preparation for photomicrography. Estimating and invoicing projects. Polarizing Filter experiment. Discussion of project photos.

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**Week 4:** Digital capture and image processing techniques for scientific imaging. Topics include false-color renditions, tri-color capture and image enhancement procedures. Discussion of project photos.

**Week 5:** Introduction to astrophotography. Topics include photographing star trails and photography by moonlight. Discussion of project photos.

**Week 6:** Photography through the microscope with polarized light for analyzing crystal patterns and colors. “Scientist at work” project. Discussion of project photos.

**Week 7:** Macrophotography and focus stacking. Mid-term review of projects. Discussion of project photos.

**Week 8:** Production week – work on projects

**Week 9:** Small specimen photography. Discussion of project photos.

**Week 10:** Group presentations on specialized techniques. Discussion of project photos.

**Week 11:** Portfolio presentation methods. Communicating science in a visually compelling manner. Discussion of project photos.

**Week 12:** Production week – work on projects

**Week 13:** Discussion of project photos.

**Week 14:** The industry – market segments, employment, entrepreneurial opportunities. Video applications. Final portfolio due.

**Week 15:** Final portfolio presentations and assessments

## GENERAL ASSESSMENT CRITERIA AND METHODS OF EVALUATING STUDENTS

Letter grades (A, A-, B+, B, etc.)

The student’s overall grade for this class is derived from a combination of online instructional activity, class participation, assignments, quizzes and exams, projects, and final project/final exam. A student’s grade will be adversely affected by being tardy to class and by any unexcused absence. Only the instructor can authorize exceptions to class policies, deadlines or grades. Students must confirm (in writing) any exceptions to class policies or deadlines with the instructor. Class work is weighted as follows:

Grade Weighting		Grading Scales		
Course Area	%	Percent	Letter	Numeric
		93–100	A	4.00
		90–92	A-	3.70
		87–89	B+	3.30
		83–86	B	3.00
Projects	80%	80–82	B-	2.70

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		77–79	C+	2.30
Class Participation	10%	73–76	C	2.00
		70–72	C-	1.70
Final Portfolio	10%	67–69	D+	1.30
		60–66	D	1.00
Total	100%	0–59	F	0.00

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## DEFINITIONS OF CRITERIA USED IN GRADING

Outstanding = A	Outstanding work, showing insight and demonstrating excellence in skill and craft. Work goes well beyond what is required
Superior = A-, B+	Superior work, shows clear understanding and thorough demonstration of skill and craft
Good = B, B-	Competent work, clear understanding, often showing creativity and good use of skills
Satisfactory = C+, C, C-	Adequate understanding, inconsistent demonstration of skills, some elements missing or problems with priorities
Unsatisfactory = D, F	Lacks understanding, inadequate amount of time and effort demonstrated, many missing elements, inconsistent participation, skill and craftsmanship not demonstrated

## ATTENDANCE POLICY

Each faculty member takes attendance for each class period and posts it to the student's record through the portal. Once absences equal 20 percent of the total number of class meetings, faculty may lower the final grade for the course one full grade and may drop the grade again for each absence after the 20 percent has been reached. Students may review their attendance through the student portal under each course the student is enrolled in.

Students who do not attend during the first week of class may be subject to withdrawal. Brooks Institute may also withdraw any student who has not been in attendance for 14 consecutive days. However, the institute will withdraw any student who has had non-attendance for 35 consecutive days; this timeframe may be extended due to extraordinary circumstances that affect the entire student population. Students will be responsible for all financial obligations incurred if and when they are withdrawn for lack of attendance

Regular classroom attendance is not only an essential ingredient for academic achievement, but it is also a fundamental building block for success. As part of the course requirements, students must attend at least 80 percent of the scheduled time for each course in order to achieve satis-

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factory attendance. Students in any of the internship courses are required to complete all scheduled hours and record attendance throughout the scheduled course to achieve satisfactory attendance. Students who do not achieve satisfactory attendance may earn a failing grade on their transcripts and may be required to repeat the course. Absences will include tardiness or early departures. Students who are not in attendance for any portion of a class will accrue time absent calculated in percentage increments of 25, 50, or 100 percent of the class period as reflected on each daily roster. Students who have been absent from all their scheduled classes for more than 14 consecutive calendar days, not including scheduled Institutional holidays or breaks, and/or students who officially withdraw from all current courses may be administratively withdrawn from the Institution.

## Academic Integrity

Brooks Institute expects all students to exemplify integrity in all academic work. Brooks Institute will not permit students to engage in the following dishonest acts:

- **Cheating** – Cheating includes, but is not limited to, the following: using unauthorized notes, study aids, electronic or other devices not authorized by the instructor. Using or borrowing information from another person, or submitting someone else’s work as one’s own work including images and motion clips. Using work previously submitted for another purpose, without the instructor’s permission, is prohibited. Duplicated use of copyrighted material in violation of federal copyright laws is prohibited.

- **Plagiarism** – Submitting as one’s own work, in whole or in part, words, ideas, art, designs, text, drawings, images, motion clips, etc. that were produced by another person without attributing that person as the rightful source of the work. Plagiarism includes, but is not limited to: using words, word passages, pictures, etc. without acknowledgement; paraphrasing ideas without quotation marks or without citing the source.

- **Accessory to Dishonesty** – Knowingly and willfully supplying material or information to another person for the purpose of using the material or information improperly.

- **Falsification or Alteration of Records and Official Documents** - The following are examples of acts under this category, but the list is not exhaustive: altering academic records, forging a signature or authorization on an academic document, or falsifying information on official documents, grade reports, or any other document designed to attest to compliance with school regulations or to exempt from compliance.

- **Software Code of Ethics** – Unauthorized duplication of copyrighted computer software violates the law and is contrary to our organization’s standards of conduct. Brooks Institute disapproves of such copying and recognizes the following principles as a basis for preventing its occurrence:

- Brooks Institute will neither engage in nor tolerate the making or using of unauthorized software copies under any circumstances.

- Brooks Institute will only use legally acquired software on our computers.

- Brooks Institute will comply with all license or purchase terms regulating the use of any software we acquire or use.

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- Brooks Institute will enforce strong internal controls to prevent the making or using of unauthorized software copies, including effective measures to verify compliance with these standards and appropriate disciplinary measure for violation of these standards.
- **Communication Devices**-To maintain academic integrity and to eliminate distractions for other students the use of electronic devices in the classroom is dictated by the instructor.

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## CREDIT ASCRIPTION ADDENDUM

### CMO323 Scientific Photography - 3 semester credit hours

Type: Lecture

#### Credit Ascription – The amount of hours spent outside of class and the assignment alignment with Course Learning Objectives

Course Learning Objectives:

1. Apply photographic analysis techniques using magnification optics (“Effectively use contemporary photographic tools”)
2. Apply an understanding of the different parts of the electromagnetic spectrum (such as infrared and ultraviolet) to analytic and illustrative photographic applications
3. Assess photographic systems based on the amount of data that the system is capable of delivering and choose the appropriate system for particular applications (“Effectively use contemporary photographic tools”)
4. Apply visual communication aesthetics to create compelling communication of the subjects photographed
5. “Effectively collaborate to accomplish professional goals” - related to photographic methods research and presentation of findings

The following indicates the **minimum** number of hours per assignment:

Week	Assignment Title	Homework Hours	Assignment Objectives
1	Reading assignment– response paper	4	4
	Polarizing Filter Experiment	6	1, 2, 3
2	Experiment 1	6	1, 2, 3
3	Invoice 1	2	5
	Group Project Proposal	4	
4	Group Project Production	4	5
	Experiment 2	6	1, 2, 3
5	Group Project Production	4	5
	Invoice 2	2	
6	Group Project Production	4	5
	Experiment 3	6	
	Invoice 3	1	
7	Group Project Production	4	5
	Experiment 4	6	
8	Group Project Production	8	5
9	Group Presentation	2	5
	Portfolio Image 1	6	4
10	Experiment 5	6	1, 2, 3
11	Experiment 6	6	1, 2, 3
12	Experiment 7	6	1, 2, 3
13	Portfolio Image 2	6	4
	Invoice 4	1	
	Scientist at Work	6	
14	Final Portfolio	10	4
	Final DVD	1	
15	Portfolio presentation	6	4
<b>Total</b>		123	