

Photographing Nature **COURSE SYLLABUS**

COURSE DESCRIPTION AND RELEVANCE

Photography is playing an ever expanding role in our lives. This is the first time in history when virtually every person carries a photographic imaging device with them almost 100% of the time, usually in the form of a phone, but also in the form of convenient point and shoot cameras, and even versatile DSLRs. We might think of this as “the democratization of photography”.

In addition to studying photography because it is inherently interesting, we will use photography as a lens for looking at nature. The idea behind the course is to get students to rethink the environment in which they live through the medium of pictures. The rationale is that photography causes people to slow down, scrutinize, and record what they see, as well as what they think they see - since the camera can capture things that are too fast, too slow, too far, too small, or too complicated for the brain to process during a routine encounter. This is taken to an extreme in astronomical photography or electron microscopy.

Students will use their cameras to visually record their observations in the field. The pictures will then form the basis of mini-research projects on the chosen subjects to greatly expand their knowledge beyond what they could observe in a brief moment in time. We will emphasize the integration of pictorial and verbal descriptions, as well as personal observation with collected knowledge.

Emphasis will be placed on 1) gaining familiarity with the local environment, 2) effective visual expression, 3) integration of visual and verbal description in communicating science, and 4) photographic technique. This class will cover a fair bit of biology but no prerequisites or prior knowledge of biological processes is required.

This offering might be described as a course on “the photography of science” as opposed to say the science of photography or the art of photography, although these other elements will come into play as well.

The course is intended to be interesting, educational, useful, and fun. This will work best if each student contributes to the structure of the course and tries to function as a self-motivated scholar.

COURSE DIRECTOR

Robert Siegel
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Dr. Siegel is an Associate Professor at Stanford Medical School, where he is Course Director of the Infectious Disease component of the required preclinical curriculum. Robert has appointments in the Department of Microbiology and Immunology, The Program in Human Biology, and the Center for African Studies. His courses focus on virology and infectious disease, on genetics and molecular biology, on global health and development, on photography, and on Darwin. Robert is the recipient of numerous teaching and advising awards including the Gores Award and the ASSU Teaching Award. Robert's photographs have appeared in a variety of scholarly and popular books and articles, and have appeared on numerous web sites.

Additional information can be found on his web site:

<http://www.stanford.edu/~siegelr/>

Samples of his photographic work can be found at

<http://www.stanford.edu/~siegelr/photo.html>

A short travel blurb can be found at

<http://www.stanford.edu/~siegelr/travelblurb.html>

COURSE TA

Zachary Gold
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Zack Gold is a sophomore studying marine biology and environmental engineering at Stanford interested in the strategies for protecting marine ecosystems from anthropogenic impacts. Zack has been practicing nature photography for the past four years in Alaska, the Sierra Nevadas, Big Sur, the Bay Area, Kenya, and the Galapagos. Last year Zack took Dr. Robert Siegel's introsem *Photographing Nature* and the Jasper Ridge docent class.

FORMAT

Two sections of the course are being taught: one as a Stanford Undergraduate Introductory Seminar (IntroSem) and one as a Continuing Studies Program (CSP) course. Each section of the class will meet twice per week: one didactic session and one field trip.

The didactic session will be divided into presentations by the instructor, presentations by guest speakers, student presentations, and picture review. The IntroSem didactic session will be on Wednesday afternoons and the CSP section is on Thursday evenings.

The field session will take place on Saturdays and will combine the two sections of the class. (See separate Field Trip section for additional info.)

PREREQUISITES

The prerequisites for the course are 1) an interest in the topic, 2) a willingness to cover and learn the environmental underpinnings in this area of study and 3) flexibility in terms of scheduling. There are no prior course prerequisites.

CLASS SIZE AND SELECTION OF STUDENTS

The class is limited to 12 students. Ideally, the selection of students is based on their level of commitment, lack of scheduling conflicts, flexibility, extent to which the course would integrate with other interests, writing eloquence, and availability of pertinent camera equipment.

EQUIPMENT

The course will deal with digital photography. A DSLR is preferable but not required. DSLR have the advantage of being extremely versatile with a wide range of settings. They have the disadvantage of size, weight, cost, and complexity. The so-called ‘megazoom cameras” are an excellent compromise. Pocket point and shoot cameras and phone cameras also exhibit a series of advantages and disadvantages but they may lack flexibility in approaching certain types of nature photography.

GRADING PHILOSOPHY

The course will be graded on a pass/no credit basis. Students are expected to be self-motivated and produce high quality work with emphasis on academic scholarship. A great deal of credit will be given to those students who show independent initiative.

COURSE REQUIREMENTS

Student Requirements

- 1) Mandatory class attendance and participation
- 2) Selection and presentation of 5 images per week
- 3) Course blog / presentation write up (1 per week = 10)
- 4) Blog commentary (2 per week = 20)
- 5) Observations / Twitter – (2 per week = 20)
- 6) PowerPoint presentations (3-5 per quarter)
- 7) Photo exhibit
- 8) Dossier

COURSE TOPICS, THEMES, SKILLS, LANGUAGE METAPHORS AND VENUES

Each week we will explore a series of **topics, nature themes, techniques/skills, language metaphors, and locations**. These appear as a series of lists below, although the emphasis may change somewhat during the quarter. These will also serve as the basis for students' weekly assignment. Please let me know of any additional items that you wish to have covered.

Topics (Wednesdays)

Intro – photographing nature
Rethinking photography
iNaturalist
Dissecting the picture
The light room
Macro
Creativity
Research – the camera as a tool in science
Equipment - What's in your bag? / care and feeding
Presentations / exhibition

Nature themes (subject)

plants
inverts
birds
climate, weather, seasons
vertebrates
mushrooms
sun and moon - environment
flowers

fungi
landscape, earth
people as nature
water

Skills / techniques

Camera settings
Perspectives
Post-image processing
Observations
Lighting
Depth of field
Macro
Color
Contrasts
Movement
Change / interaction
Dissection and set up (alteration)
Photo sharing

Language Metaphors

Composition
Syntax
Grammar
Vocabulary
Style/voice
Creativity
Quick communication – Twitter
Email
Blog
Facebook
Diary/memory book/scrap book
Drafts
Op-Ed
The photo essay

Venues - Saturdays

The Stanford Dish
The Arizona Cactus Garden
Jasper Ridge Biological Preserve
Año Nuevo State Park

Palo Alto Baylands / Duck Pond / Byxbee Park
Arastradero Preserve
Pescadero or other beach site
San Bruno Mountain
Tilden Botanical Garden
Felt lake
The Stanford Quad
Santa Cruz Arboretum

COURSE FIELD TRIPS

Each week, students will be expected to get out in the field to take a series of pictures corresponding to the weekly assignments. Many of these outings will be carried out as a group to selected locations that are particular suitable for photographing aspects of nature.

As noted above, field trips will combine two sections of the class: Stanford Undergraduate Introductory Seminar students and Continuing Studies Program students. The two groups will meet on campus and carpool together. We will be joined in the field by a various expert photographers and others who may be consulted for advice on technical, scientific, and/or artistic issues.

Potential field trip locations are listed above. A tentative schedule will be posted online and announced in class. I will also accept suggestions for optional field trips. The actual destinations will depend on the availability of transportation and other variables, most notably weather. Depending on the weather and the venue the times and dates may change. Flexibility is one of the course requirements.

Please let me know if you have a car and would be willing to drive. We will meet in the Tresidder parking lot unless otherwise specified. The time is determined by the venue and the weather. Times will be decided/announced in class.

GUEST PHOTOGRAPHERS

We have an array of speakers and preceptors with various areas of expertise. These “guest photographers” will be coming in to carry out one or more of the following roles:

- Providing classroom talks about specific aspects of photography
- Discuss their experiences in photography and sharing some of their photographic work
- Serving as guest critiquers of student work
- Serving as field assistants on photo outings making suggestions about equipment, settings, or subject material
- Serving as content experts in the field to answer questions about the aspects of nature we will encounter on outings

They are all volunteering their time and effort so we will accord them the highest level of courtesy and respect. Please be understanding with regard to the fact that some of them may overlap in terms of their presentation content and in terms of the fact that the sequencing of their talks may not always be optimal due to the vagaries of peoples travel and work schedules. The details of who will be speaking when can be found online on the Google calendar for the course Google account (photographingnature@gmail.com) and will be updated on an ongoing basis.

Course guest speakers:

- Sue McConnell
- Tom Merigan

Additional potential guest speakers include:

- Mike Spinak
- Andrew Newman
- Scott R. Loarie
- Susan Anderson
- Matt Scott
- Tina Seelig
- Mike Marmor
- Klaus Porzig
- Joel Simon
- Philippe Cohen
- Dan Quinn
- Bill Durham
- Doug Osheroff

- Roel Nuess
- Lubert Stryer
- Greg Kovacs
- Marc Levoy
- Brian Tobin
- Jamie Tsui
- Ken-ichi Ueda
- Tom Davis
- Wendy Max
- Gary Sharlow
- Forrest Glick
- Alan Siegel
- Frederick Van Johnson
- Neil Osborne

POTENTIAL QUESTIONS FOR SPEAKERS

Why do you take pictures?

When did you start?

What was/is your inspiration? / Who was/is your inspiration?

What are your favorite subjects / types of photography?

What is in your bag?

What is your favorite piece of equipment?

What is your next piece of equipment?

What is your favorite “trick”?

What did you learn the hard way?

How do you save/store/archive your pictures?

What editing software do you use?

What are some advantages and disadvantages of eye and brain over camera and computer?

Best experience(s)?

Worst experience(s)?

What is your photographic dream?

How does photography fit in with your work or other parts of your life?

What have you learned about nature from your photography?

What online or printed resources have been most helpful in learning about your photographic subjects?

What makes a great picture?

How do you “read” a picture?

Any other advice for aspiring photographers?

FIELD INVESTIGATIONS

Every week, each student is expected to choose a single topic based on their field experience. Starting with photos from the field, students will research a specific series of questions regarding their chosen topic. The approach to the weekly field investigation will be based upon the theme of the week. Students will present their findings as a blog posting prior to each Wednesday classroom session. One of these studies will be chosen for a detailed investigation presented as a PowerPoint presentation and a detailed write-up.

WEEKLY IMAGE PRESENTATIONS

Based on the theme of the week, each student will submit five (5) images prior to class on Wednesday. These will be reviewed in class by the members of the class, the instructor, and guest photographers. Details on how to submit the pictures will be forthcoming.

OBSERVATIONS

Observations are 1-2 sentence reflections on course material. Students are expected to make 2 observations per week (20 in all). Observation may be based upon the reading, web explorations, field work, student presentations, etc. Observations may be quite directed or highly reflective. Observations are posted on the Twitter account (described below).

CLASS BLOG: PHOTOGRAPHINGNATURE.BLOGSPOT.COM

Students are expected to post at least one investigation per week on the class blog:
photographingnature.blogspot.com

In addition, every week, each student is expected to post at least two comments on the blog posts of the other students.

INDEPTH POWERPOINT PRESENTATION

During the quarter, each student will be expected to make one in-depth PowerPoint presentation elaborating upon one of their blog postings. This presentation will be formally written up as below. The presentation should integrate your pertinent photos with informative written content. Aside from quotes, terse bullet points usually work most effectively. Use of the *custom animation features* and of

information parsing can also enhance the quality of the presentation. These will be discussed in class.

ORAL PRESENTATION NOTES

Oral presentation of your PowerPoint should run no more than 10 minutes, excluding discussion. The presentation should include the following:

- 1) Introduction of yourself
- 2) Why you chose this topic and why this topic should be of general interest.
- 3) Introduction and/or background to the topic
- 4) Main content
- 5) Summarization of the key information
- 6) Bibliography (web sites citations should include the date of accession)
- 6) Questions

Additional suggestions:

- 1) Speak loudly and clearly.
- 2) Emphasize key points
- 3) Define terms that are new or unfamiliar
- 4) Answer questions from the audience
- 5) Pose provocative questions to the other students
- 6) Stimulate discussion of the topic
- 7) You need not cover all aspects of your topic.
- 8) However, you should paint a *complete picture* of whatever you do decide to cover.
- 9) Do not concede your shortcomings or your audience will focus on them.
For example, avoid saying "I am sorry I did not enough time to really understand what the authors were doing when they..."

There is an Oral Communications Tutor (OCT) to assist you with your every presentation need.

WRITE-UPS

The write-up is an elaboration of the material presented in the PowerPoint presentation. The write-up should be five pages (double spaced). The write-up should be content based *without repetition* in the introductions or summaries. Conclusions should be integrative and go beyond preceding material. The structure should be logical and clear. The style should be lively and engaging.

FINAL EXHIBIT

Students will combine select pictures for display in a public exhibit. Details regarding printing and mounting will be updated during the class. The venue for the exhibit will also be announced in class.

DOSSIER

All students are required to keep a dossier of all their assignments and other work in the class. This should include copies of all your assignments and other work completed in conjunction with the course as well as photographs of all physical projects.

***Please turn in an **electronic and a hard copy version of your dossier.**

The dossier should include:

- A list of all work / table of contents
- Weekly review pictures
- PowerPoint Presentations
- Topic write-up
- Blog postings
- Blog commentaries
- Twitter observations
- Final exhibit photos
- A list of topics of particular interest in the course

Please turn your dossier in by Friday March 15, 2011. Electronic copies should be mailed to photographingnature@gmail.com

You should also keep a permanent copy of your dossier for reference.

EMAIL

Communication with students and course announcements will often be delivered by email. Students are expected to check their Stanford accounts *every day*.

EMAILING FILES

All emailed files should follow the following naming convention:

course-yourname-document title or subject key words-draft version-date

For example:

“photographing nature - Siegel – mimosa – final draft –October 1, 2011.doc”

Do **not** name your file something like “siegel paper” or “final draft”.

If you are sending me a draft that is close in content to a previous draft, please indicate the alternations with the track changes command or comparable color annotation.

CLASS ACCOUNT

The class account is photographingnature@gmail.com. This will be the location for the course calendar, additional course information, and the course blog, as well as a repository for course assignments, and supplemental reading materials. For certain issues and additional readings, the coursework site will also be used.

The password is “pixrocks”.

TWITTER

The class Twitter account is “stanfordphoto”.

Students are expected to set up individual Twitter accounts and post their observations on a weekly basis.

To set up an account, go to <http://twitter.com/>

To post to the class twitter, begin your twitter with “@stanfordphoto”.

You can see the class posts by searching on stanfordphoto. Or you can log into the course account and look under “@mentions”.

COURSE WEB PAGE

Information on the course will be posted on the course web page:

<http://www.stanford.edu/~siegelr/photonature>. This includes a link to the iNaturalist project (below). Additional information may be posted on course work:

<http://coursework.stanford.edu>.

iNATURALIST

In conjunction with the course, I have set up an iNaturalist Project:
<http://www.inaturalist.org/projects/photographing-nature>.

PERMISSIONS

I sometimes use student presentations as demonstrations or as parts of my presentations - with attribution.

If you have any preferences regarding the possible use of your work, please let me know (especially emphatic no's or emphatic yes's). I will not use any work that you prefer not to share.

POD CASTS

This Week in Photography (TWiP) – Frederick van Johnson

TED Talks: “David Griffin: How photography connects us”
http://www.ted.com/talks/david_griffin_on_how_photography_connects.html

ONLINE PERIODICALS

Nature Photographers
<http://www.naturephotographers.net/enter.html>

BACKGROUND READING IN PHOTOGRAPHY

The good news is there are many outstanding books, articles, and web resources. The bad news is the abundance is overwhelming.

Here is an excellent review of 8 books that may help you decide:
<http://www.naturephotographers.net/articles0306/pf0306-1.html>

National Geographic is often considered the gold standard for nature photography and they publish a series of useful books (with admittedly pretentious names). For example:

National Geographic Ultimate Field Guide to Photography: Revised and Expanded (Photography Field Guides) - National Geographic, 2009

Stuckey, Scott *National Geographic Ultimate Field Guide to Travel Photography*
(Photography Field Guides) - National Geographic, 2010

In terms of lens and settings, I have enjoyed the Canon published book *EF Lens Work III: The Eyes of EOS* March 2011, Thirteenth edition

WEBSITES AND RESOURCES ON PHOTOGRAPHY

Websites:

Nature Photography - Wikipedia
http://en.wikipedia.org/wiki/Nature_photography

iNaturalist
<http://www.inaturalist.org/>

Bug Guide
<http://bugguide.net/node/view/15740>

Mushroom observer
<http://mushroomobserver.org/>

This week in Photography
<http://www.thisweekinphoto.com/>

Birds of Stanford
<http://www.stanford.edu/group/stanfordbirds/>

Naturography – Mike Spinak
<http://naturography.com/>

Tom Merigan
<http://www.pbase.com/merigan>

Lubert Stryer
<http://www.stryerphoto.com/>

Klaus Porzig
<http://klausporzigphotography.com/galleries/wildlife>

Stuart Koretz
<http://www.stuartkoretzphotography.com/-/stuartkoretzphotography/>

Richard Roth

<http://www.flickr.com/photos/60519499@N00/>

Nature photographers – Wikipedia

http://en.wikipedia.org/wiki/Category:Nature_photographers

Clyde Butcher – Wikipedia

http://en.wikipedia.org/wiki/Clyde_Butcher

Art Wolfe

<http://www.artwolfe.com/>

Frans Lanting

<http://www.lanting.com/>

ADDITIONAL PHOTOGRAPHY OFFERINGS AT STANFORD

Conservation Photography

Susan McConnell and Neil Osborne, September Arts Intensive

Introduction to Photography Studio Art - ArtStudi 70-1, 70-2

J Francisco, summer quarter

Digital Photography CS 178

Marc Levoy, spring quarter

The Physics of Photography

Doug Osheroff

Medical Imaging Systems Electrical Engineering 22N

Dwight Nishimura, winter quarter, freshman seminar