

## ***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'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>

## **FORMAT**

The class will meet twice per week on Thursdays and Saturdays during Autumn quarter. One class will be divided into presentations by the instructor, presentations by guest speakers, student presentations, and picture review. The other session will be a field trip.

## **PREREQUISITES**

The prerequisites for the course are 1) an interest in the topic and 2) a willingness to cover and learn the environmental underpinnings in this area of study. 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 presentation
- 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 (Thursdays)**

Intro – photographing nature  
Rethinking photography  
iNaturalist  
Dissecting the picture  
The lightroom  
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  
invertebrates  
birds  
climate  
vertebrates  
mushrooms  
sun and moon - environment  
flowers  
fungi  
landscape, earth  
people as nature

## **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**

Arizona Garden  
Jasper Ridge  
Palo Alto Baylands / Duck Pond / Byxbee Park  
Arastradero Preserve  
Pescadero or other beach site  
The Stanford Dish  
San Bruno Mountain  
Tilden Botanical Garden  
Felt Lake  
The Stanford Quad  
Año Nuevo  
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 particularly suitable for photographing aspects of nature.

Potential field trip locations are listed above. We will also accept suggestions for optional field trips. The actual destinations will depend on the availability of transportation and other variables. Please let me know if you have a car and might be willing to drive.

## **GUEST PHOTOGRAPHERS**

We have an array of speakers and preceptors with various areas of expertise. These “guests 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](mailto:photographingnature@gmail.com)) and will be updated on an ongoing basis.

Course guest speakers:

- Sue McConnell
- Mike Spinak
- Alan Siegel
- Andrew Newman
- Scott R. Loarie
- Susan Anderson

Additional potential guest speakers include:

- Matt Scott
- Tom Merigan
- 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
- Frederick Van Johnson
- Neil Osborne

## **POTENTIAL QUESTIONS FOR SPEAKERS**

\*\*\*How has photography helped you to learn about the natural world?

\*\*\*Can you give specific examples?

What innovations or equipment would make your camera an even more important tool for learning about nature?

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

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 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 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 Thursday 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 Thursday. 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, fieldwork, 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 15 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 have 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 selected 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 Sunday December 15, 2011. Electronic copies should be mailed to [photographingnature@gmail.com](mailto: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](mailto: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 account, begin your tweet 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.

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## **BACKGROUND READING IN PHOTOGRAPHY**

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

## **WEBSITES AND RESOURCES ON PHOTOGRAPHY**

### **Websites:**

Nature Photography - Wikipedia  
[http://en.wikipedia.org/wiki/Nature\\_photography](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/>

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

Nature photographers – Wikipedia  
[http://en.wikipedia.org/wiki/Category:Nature\\_photographers](http://en.wikipedia.org/wiki/Category:Nature_photographers)

Clyde Butcher – Wikipedia  
[http://en.wikipedia.org/wiki/Clyde\\_Butcher](http://en.wikipedia.org/wiki/Clyde_Butcher)

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

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

## **ADDITIONAL PHOTOGRAPHY OFFERINGS AT STANFORD**

Explore courses lists 56 courses with the word photography for the 2011-2012 academic year. (Some caveats: Not all of the listed courses are being offered; some are offered at overseas campuses; some are cross-listed more than once.) Here are some of the offerings:

***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

*Photographing Nature*  
Robert Siegel

Sophomore Intro Sem  
Autumn 2011

***The Technical Aspects of Photography*** Physics 80N  
Doug Osheroff

***Medical Imaging Systems*** Electrical Engineering 22N  
Dwight Nishimura, winter quarter, freshman seminar