Digital Photography
Introductory level to Intermediate

- Digital photography in the studio
- Digital photography outside on location
- 35mm medium and large format digital photography
- How to select the digital camera which is best for your needs
- How to avoid choosing the wrong camera, lighting, or accessories

A feature of this course, and what makes it unique, is the focus on Digital Photography as Input for Wide Format Printing

Medium format digital

Example of quality you too can achieve with a digital camera with tips and help of this course on digital photography

35mm SLR digital

Large format digital

Organized and delivered by Nicholas Hellmuth, PhD

Open enrollment, via web-based training. You don't have to be resident in Ohio, you can take this course from anywhere in the world via Internet.

Course programmed for Spring 2004

Introduction

FLAAR was in the forefront of museum-quality, traditional studio and location photography before digital imaging even existed. This experience means that the new course can empathize with traditional photographers, who have a background in 35mm, medium format, and large format photography, as well as non-photographers who also need to move into the shifting sands of the digital millennium.

New headquarters for the FLAAR digital imaging facilities at Bowling Green State University.

Course Abstract

Nicholas discusses, compares and contrasts, and reveals pros and cons of

- Nikon, Canon, Contax, Foveon-Sigma, Fuji for 35mm SLR level.
- BetterLight, PhaseOne, Anagramm, Kigamo for wide format at the high end.
- Nikon CoolPix, Sony, Minolta, Olympus and other zoom-lens entry level.
- Imacon, Fuji Luma, Jenoptik EyeLike, MegaVision, Kodak, PhaseOne Sinar for medium format.

This course provides step-by-step instruction of how to produce digital photographs that contain optimal resolution for impressive output with wide format printers. We cover printing photographs on ColorSpan, Encad, Epson, Hewlett-Packard, Iris giclee, Mimaki, Mutoh, Roland, inkjet printers, 24” and wider, though the course is equally applicable to digital imagers such as Durst Lambda and Cymbolic Sciences Lightjet.

Although the emphasis is on wide format printers, it is natural that if you have only a tabloid sized printer, such as Epson 1520, Epson 2000, Epson 3000, Epson 5000, Epson 5500, one of the newer Epson 2200, Hewlett-Packard 10ps, 20ps or 50ps, Canon 8500 or Canon imagePROGRAF 2200, that you will also learn how to produce better photographic and fine art giclee prints as a result of this course. You can print on photobase, canvas, or watercolor paper (or directly onto silk, cotton, even leather: Professor Hellmuth is director of the FLAAR inkjet testing lab, so you get all the information directly from his years of experience).

Nicholas has about nine inkjet printers, including the fabled Iris 3047 giclee printer, right in the same facilities from which he broadcasts the training course.

However, this course is also appropriate for people who need to produce the absolute top quality with a Xeikon, Scitex, Xerox, or HP-Indigo-type variable data liquid toner digital printer or Fuji Pictrography.

If you do not yet have any printer at all (none is required; you can take the course without owning either any camera nor any printer). We do not recommend that you buy a printer or camera until you have all the evaluations that will be available to you as a participant in this course. For example, two of those printers listed above are poorly designed with serious deficiencies; yet several of that tabloid-sized series of Epson printers is excellent and we recommend them. So surely you might like to learn which printers to avoid, and which printers are worthy of your consideration.

Target Audience

People who take this course want to learn from an experienced photographer who has actually used the complete range of digital cameras.

Most of the people who sign up for the course primarily want tips on which camera brand and model to purchase. Then they seek help on knowing what studio lighting and accessories to use. Help with color management is much sought after also.

This course is appropriate for the following professions:

- Artists (photography of art for giclée printing), art conservators
- Curators of any kind of museum, natural sciences, archaeologists
- Graphic Designers
- Photographers, intermediate level and up
    - portrait photographers
    - sports photography
    - photojournalism
    - travel photography
    - Product photography
    - Industrial photography
    - Architectural photography
    - Black-and-white photography and inkjet printing
    - Landscape and panorama photography
    - Wildlife photography, plants, animals, birds
    - Scientific photography (geology, botany, zoology, etc).
- Leisure and pro-sumer photographers who aspire to produce prize winning photos for exhibits
- Geologists and geographers who need to print GIS combined with photos
- In-house corporate graphic staff
- IT staff
- Architects, art historians, architectural historians
- Engineers who need to print CAD combined with photos
- Theater design staff for backdrops and costumes
- Television station set designers
- Textile designers for proofing textiles
- Realtors who need to produce excellent images
- Instructors at community colleges, colleges, universities, art schools, who themselves wish to use, or teach, digital photography
- Students of all levels in any of the above fields who need to learn advanced digital photography

This course is also appropriate for individuals in the following industries:

- Advertising agencies
- Sign shops that specialize in POP signs
- Quick print shops

- Reprographic shops
- Prepress
- Proofing
- Courtroom graphics is another area where the quality of display graphics may win a court case
- Government agencies
- Hotel companies
- Travel agencies
- Tradeshow graphics

Focus on printing your digital photos.

Course Objectives

Participants enrolled in this course should have the following goals:

- Understand why and in what aspects an original digital photograph may produce a better result than would a scanned negative or transparency (and vice-versa in other circumstances: we explain the occasional instances when a traditional photograph is better than a digital photograph)

- Understand how the quality of a digital photograph can equal the quality of a traditional darkroom photograph, and in what circumstances this is not so

- Learn which type of digital sensor will produce the types of photographs you and/or your company need to print. Once you know the capabilities of each distinct type of digital sensor (CCD vs CMOS), then you can make an appropriate selection of a make and model of digital camera (remembering that every camera has some good features, and those same good cameras have a few weak points).

- Be able to make the best use of a camera you already have to produce at the quality that you need. Most photographers do not have enough money to waste on buying the wrong equipment. It is equally crucial to have documentation to support your decision to buy the brand and model you decide on. All of this is what you get from the expertise of Dr Hellmuth.

- Lighting for digital photography is both the same yet totally different than lighting for traditional studio photography. People who sell you the cameras may not warn you, or my not know the answers anyway. It is rare they have personal experience in every kind of lighting (most places could not possibly stock everything anyway). Nicholas Hellmuth has dedicated considerable effort to bring documentation on lighting from Photokina as well as from personal practical experience.

- Be able to make a decision on choosing a printer that will meet your needs. You will also realize what accessories, software, inks, and inkjet materials to consider.

- Be able to go to any tradeshow or camera store (or wide format printer dealer), and understand the jargon, distinguish advertising hype from reality, and be able to make an educated selection of equipment

Professor Hellmuth and participants visit PMA photography trade show together. This is an option, not a requirement.

- Know which aspects of Adobe Photoshop you need to concentrate on either with practice or through a subsequent course. You will also receive instruction on what after-market software is a good companion for Adobe Photoshop, and which digital asset management software can keep track of all your images.

- If you wish to be at ease with the jargon of digital photography, digital imaging, and wide format printing, then you have come to the right place. You will have enough glossaries available to you so that you will be able to read, and understand, even the most arcane report on these subjects and at least know where to go to get help with the definitions.

Research and Preparation undertaken to prepare this course for you

Two years ago we conducted a survey of roughly 90% of the photography courses available in the USA. Much to our surprise, out of several hundred universities, community colleges, institutes, museums, or photography schools, less than 3-dozen actually offered a course even labeled as digital photography.

Dr. Nicholas Hellmuth and Jennifer Imes preparing the Digital Photography course

The majority of courses that were advertised as “digital photography” turned out to be introductory courses primarily on scanning (which is not digital photography). In the few courses where a digital camera was discussed, only about 10% of the course was dedicated to the camera; 90% of the course was on Adobe Photoshop--teaching students how to repair bad scans. Again, the rubric of “digital photography” has been improperly assumed to cover scanning traditional film and then imaging the resultant scans.

Of the rare instances when a course was really on digital cameras and actual digital photography, probably seven or fewer offered a program in large format digital photography. Courses on inkjet printing were even rarer.

In distinction, BGSU offers a unique course, not a generic course on scanning and Adobe Photoshop (which you can find almost anywhere). This course by BGSU+FLAAR is dedicated to showing how your digital photography can be (and definitely should be) good quality from the moment of image capture. Your photography should be so good out of the camera that you rarely need to use Adobe Photoshop (other than to resize the image for final printing). Obviously, in real life this goal is elusive, but nonetheless, this course seeks to prepare good quality digital photos to begin with, straight from the camera.

This goal implies learning which digital cameras are best for producing these ideal images. It turns out that the brand name is not always the relevant aspect; what you need to learn is which of the several competing technologies is best for your specific needs.

To incorporate a good mix of learning how to handle a digital camera together with specific features of Adobe Photoshop exclusively dedicated to digital photography, this course will be divided into the following 4 sections:

- The major portion of the course will be directly on digital cameras, lenses, filters, sensor technology, digital accessories, studio lighting, etc.
- Digital photography in the studio as well as out on location.

- Once you learn how to take good digital images the course will list which aspects of Adobe Photoshop will make them even better. But this is not itself a course on Photoshop because the best measure of a good photograph is never having to use Photoshop to repair it.
- A component of the course will introduce you to how to prepare the image for printing on a large format printer: resolution for example. How much resolution does each kind of printer technology really need: inkjet, dye sub, electrostatic, laser light, laser toner, etc. There is no book which will tell you this information (we know, we looked in over 30 books on digital photography, on scanning, and on Adobe Photoshop).

Course Content

The emphasis of this course is 35mm SLR digital cameras, medium format digital backs and large format digital scan backs.


Testing Elinchrome strobes from Bogen Photo at FLAAR studio

A new generation of 5 megapixel CCD sensor made it possible to accomplish basic large format printing with a point-and-shoot digital camera costing less than $1,000. Five years ago a camera of this nature would have cost $28,000. This course is now adding coverage of economical point-and-shoot digital cameras, but only at pro-sumer level, with the newest generation of 5 megapixel cameras as a starting point. Minolta DiMage, Olympus, Nikon CoolPix 5700, equivalent Sony and Fuji would be examples. For example, if you need fine detail and precise focus, there are only two technologies in the world that can bring you this: one in a camera costing about $1,600, the other in a camera costing $ 16,000. FLAAR has experience with both. Your institute or departmental director might want to know why one camera costs 10 times more than the other.

This course will also point out the potential of digital photography as input for exotic kinds of inkjet printing in addition to the enlargement of basic photographs. Dye sublimation, both heat transfer from paper with dye sub inks as well as wax and resin coated dye sub inks (Summa, Matan, etc.), will also be introduced. This course also discusses photographing for printing on metal foil (aluminum, gold, silver) on solid metal (via dye sub transfer). Nowadays, actually there are printers that can print directly on thick and rigid objects up to half an inch thick.

We know of one wide format printer which can print on objects up to 3 inches thick, including bricks, stone, wood, even glass. There is another inkjet printer which prints onto leather and onto door mats or rug sections (yes, even onto pile rugs).

The course however, is on photography as input for wide format inkjet printers. There is a separate course on the actual output (inkjet media, inks, accessories, discussion of pros and cons of each printer).

- This course is not intended to cover digital snapshots for the low-resolution Web usage, such as family photography of the kids and pets.
- Additionally, this course is not intended to cover digital photography for use with desktop inkjet printers at letter size.
- We will indeed introduce Kodak thermal transfer and Fuji thermal autochrome and other digital

printers (photo size, namely postcard size), but this course is not otherwise dedicated to such small sizes.

- We can gladly recommend sources relative to desktop publishing with laser printers, and how to print photographs with laser printers, but this course is not dedicated to desktop publishing. Our introductory course at Francisco Marroquin University would be more appropriate for desktop printing.
- Video frame capture is not covered since resolution is inadequate for enlargement.
- Although there will be an ample bibliography of excellent readings and tutorials on color management, ICC color profiles, calibrating your monitor, discussion of color management, glossaries of terms of color management, and comprehensive lists of precisely what tools, software, and consultants can take care of your needs for color management in wide format printers, we recommend that to master color management per se you also take a separate dedicated course.


Focus on 35mm SLR digital cameras. Nikon, Foveon, Sigma and others

Course Delivery

This course will be delivered via Blackboard software, the premier educational software for web-based learning. You will be provided access via the university web site at no extra charge.

This course does not use slick videos nor interactive CDs. It costs about $25,000 to produce a single CD; a whole course would require a dozen or more. We estimate you would prefer not to pay what that kind of video and/or CD system would cost.

Course Schedule

The course itself is intended to begin in late March '04.

Since it is via Internet, you can start it whichever date is convenient to yourself (either before or after the official starting date). There will be occasional periods when your instructor is away consulting both nationally and internationally, or attending seminars. But since everything takes place over the Internet, it makes no difference where the professor is or where you are.

This course is intended to be equivalent to a 30 hour mid-level university course. However you do not have to be a professional photographer (or even an unprofessional photographer). But there are certain pre-requisites, as itemized below.


Testing Kodak ProBack plus on Hasselblad 555 ELD on location in Central America. In the background, Nikon D-100, 35 mm SLR digital camera

You can disappear during the course period. We get used to this because many of the people who take this have a job and family too. So they have often gone away on business in the middle of the course. There are no grades; no attendance is taken. We are all adults.

Course Requirements for you: Hardware and Software

- A computer
  - Either Mac or PC
  - Capability to read a CD
  - 256 MB RAM is minimum, 512 MB is better,
- Internet access
- 56K modem is preferred since you will need to do considerable reading and research on the Internet.
- E-mail account at convenient location and convenient times.

FLAAR has all the basic color management measuring tools from GretagMacbeth and X-Rite as well as the top software for ICC color profiles from Monaco. This course includes several units on color management including comprehensive listings of what hardware and software is needed for color management.

- You need to have Microsoft Word to send in your assignments by e-mail attachment
- Adobe Photoshop.
  - Full version preferred
  - Version 6.0 preferred though naturally you may also use the newer ver 7.0
  - Version 5.5 minimum

One of the textbooks appears to have a mini-version of Adobe Photoshop included in the CD that comes with the book. If this has enough functions, it would allow you at least to get started.

Digital Camera

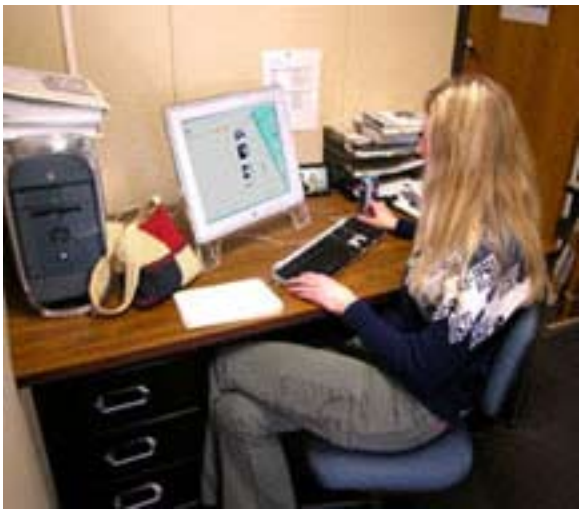
The participants do not have to own a camera but ought to at least to borrow one during the course. If they do not have one yet, they should wait until the course starts since we will discuss all the pros and cons of various makes and models. We will provide information to assist the students in their eventual choice.

Equipment Recommended but Not Required

A printer to print out reading assignments

- Laser will be much faster than a desktop inkjet
- B+W laser printer is adequate though obviously color has advantages
- However, you can go to any Kinko's or comparable and print color when necessary

Prerequisites: what background or preparation do you need to have?
You ought to already know Photoshop. It would be tough to teach you basics of Photoshop from the absolute beginning. Indeed what makes this course unique is that it's not a course on Adobe Photoshop hiding under a pseudo-title of "digital photography."



FLAAR staff at Bowling Green State University editing Dr. Hellmuth's material for the course.

In FLAAR facilities we use both computer platforms PC and Mac.

However if you are clever, you can learn Photoshop really quickly on your own. But don't try this unless you have lots and lots of spare time. If you are working two jobs plus family please don't try this.

We will, however, most definitely, describe for you the portions of Adobe Photoshop that a digital photographer needs to know. At this point again, it's your own practice, practice, until you can do it in your sleep. That's how we learned it. You, however, have an advantage. There are books available today, combined with a photographer-instructor (Hellmuth) to provide a plan and a schedule.

You need to know how to operate a computer; Mac or PC; we use both at FLAAR.

Since this course is dedicated to teaching you about digital photography, it is not required that you have background in this beforehand. It is our job to provide the reading and reference material to serve as your background.

This is not a course on color theory nor on detailed color management (we just took such a course ourselves to see how it was organized; the course alone cost over $3,000). However yes, we do cover color management as it relates to digital photography. Coverage means guided reading, an extensive annotated list of sources, and annotated background research from our staff over the last two years all nicely presented to you as one of the FLAAR reports. Three booklets and two books on color management by color scientists are available from bookstores, so it is not necessary to reinvent the wheel.

Also keep in mind that the upcoming FLAAR course on wide format printers is intended as an optional follow-up course. You are allowed to take either one, without the other, but it is recommended you eventually take them both. The wide format printer course will be offered in a subsequent semester.

If there are too many applicants then we may have to set other entrance requirements to limit class size.

What this course does not intend to cover

Above we listed the first thing this course does not cover, namely physics (the insides of computers and the inner secrets of voltage inside a digital camera) and chemistry (the hidden recipes inside inkjet ink and in the diverse layers of inkjet media). Yes, we cover how things work; yes we cover the different inks and media (as introduction to large format printing, remembering this is a course on digital photography for printing, not on printing technology).

Nikon zoom-lens CoolPix, typical entry level, but Minolta, Sony, and Canon may have better lenses.

Since there are over a dozen 3-to-5-pixel cameras, a dozen very complex medium format scan backs, and four exceedingly complicated tri-linear scanning backs, we are obviously unable to provide a training manual in each specific camera. We will tend to select a sample of each range (such as Nikon D-100 for 35mm range, Nikon CoolPix 5700 for entry level 5 megapixel class, Kodak ProBack Plus on a Hasselblad and/or Jenoptik EyeLike, and BetterLight 6000 for the tri-linear class) and feature them. So even if you have, or wish to

acquire, a PhaseOne, Imacon, Fuji or other, this course covers that same class. This is because we will discuss the cameras as a class: what performance can you expect from each. How will it affect your business, positively and negatively, if you have x, y, or z make or model of camera. So more of a business-plan kind of discussion, since we notice that so far most of the course applicants are from business. In other words, you need to understand which camera is best for your business. Plus, how much can we produce if our budget only allows x, y, or z class of digital camera.

So please do not ask us how to do macro-focusing on the Widget 4000 Digomatic camera.

You will notice that nowhere do we discuss scanning or scanners. That is because this is a course on cameras, lenses, and photography. Ironically Professor Hellmuth's original background in digital imaging is precisely in scanning (of 35mm, medium format, and large format on flatbed scanners and film scanners). It is precisely because of his interest in scanning that this subject has been kept separate. Scanners will be covered in subsequence courses.

Resources provided by FLAAR at BGSU: material already prepared for you.

Over the last two years of preparation for this course we have finished more than 30 reports which are the chapters in the course textbook. This system of providing the students reports in PDF format was because no textbook has yet been written on intermediate through professional digital photography. The few available books are on entry-level point-and-shoot for family weekend photography. FLAAR + BGSU is dedicated to a more professional perspective.

For the Spring '04 course the previous FLAAR textbook chapters have been updated, expanded, and enhanced with more illustrations. Considerable updating has incurred as a result of Professor Hellmuth spending so much time at Photokina tradeshow in Cologne, Germany and then at PhotoExpo in New York.

Opportunities to Consult with Digital Photography Guest Experts

Because FLAAR at BGSU's www.digital-photography.org is a recognized contributor in the world of digital photography, it may be possible to attract guest experts to be available to answer questions, either during discussions, via e-mail, or in some instances directly on the phone (during pre-arranged discussion times dedicated to the expertise of the guest speaker).

FLAAR staff with the covers of some of the 51 reports on wide format inkjet printing.

In addition is the experience of visiting a tradeshow in person with Nicholas Hellmuth to meet the other digital photography people also in person. A tradeshow visit naturally implies an additional cost and hence is not required.

Video Resources

Receiving video over the Internet is not yet a functioning technology unless you have a T3 line or at least T1 or similar. So far the massive costs of preparing the course in video format or in interactive CD format has been prohibitive. However, if we find video programs on digital photography from other sources we will list them as additional resources.

Class Enrollment and Credit

It is not required that students have an affiliation with a college or university to enroll in this course.

If you absolutely need course credit we can see if the paperwork can be arranged. There would be one price as a 1 or possibly 2 hour credit course via BGSU.

So far, most of the people who have shown interest in the course are people already out in the real world working. This is why we decided tentatively to offer the course as a regular training program. This also lowers the price someone, namely a price as non-credit, where you attend the class (via the Internet) as you would any seminar, conference, or other program of instruction.

Digital photography equipment, in the FLAAR headquarters at a museum on campus

Cost

We checked around to see what other universities and institutes charge:

One place offered a six day course at a tuition of $895, lab fee $200 = $1,095 for a week. The lowest program at this institute was $720 total for a single week.

Another photography school charged $1100 for a week. Their web site did not reveal what a longer course might cost.

A third institute charged $925 plus digital lab fee of $95 just for Photoshop for photographers, $1,145 for how to print digital photographs and actually did not really have a real course on digital photography (only on how to use Photoshop).

Nicholas inspecting Manfrotto tripod heads from Italy at Photokina tradeshow in Germany. We test every aspect of photography equipment; the wrong tripod head is a frustrating experience.

Why the high price: all the above institutes are basically commercial. FLAAR is a non-profit educational institute and BGSU is a state university. Our goal is education, not a commercial business. We just need to cover the actual costs of preparing and delivering the course. Preparation has been intensive and several staff members are part of the team assisting Dr Hellmuth.

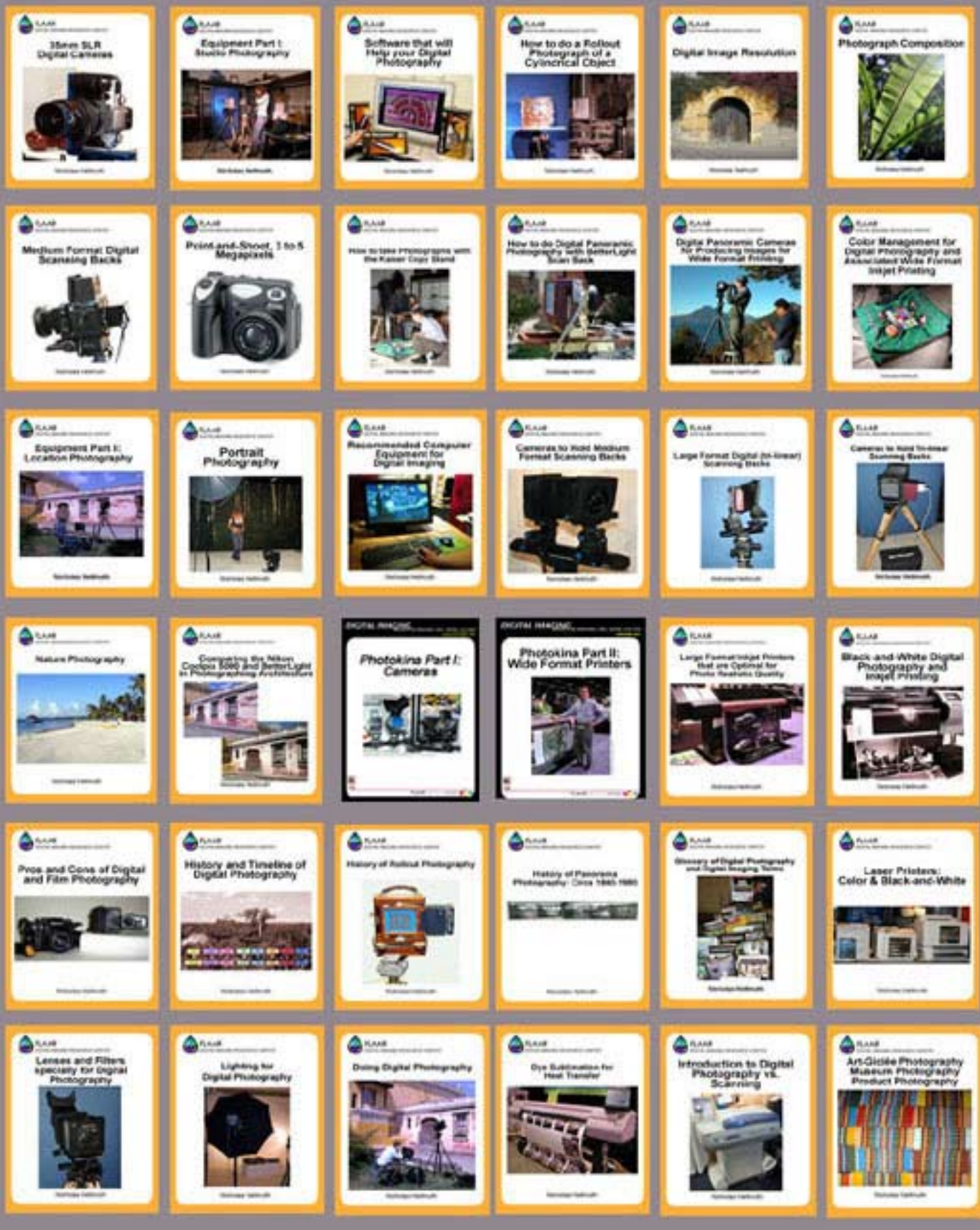
During the months of preparation of this course, Professor Hellmuth's staff searched every other university and photo school they could find. Virtually no course was actually fully on digital photography with a digital camera. Instead courses were on scanning and imaging, but merely labeled as "digital photography."

We could not find a single course which featured large format inkjet printing either. Actually a hobby photographer from San Francisco came all the way to Guatemala to take the summer version of this course (in person; the spring version is via the Internet). He said he could not find any other digital photography course in America which offered as thorough a program.

DIGITAL PHOTOGRAPHY

You will receive every one of these course units.

This abundant material (not available elsewhere) will provide you with all the experience of Nicholas Hellmuth to assist you in learning how to accomplish digital photography for your own needs and applications, at your own level, whether beginning, intermediate, or advanced



The BGSU+FLAAR program is pure digital photography along with tips on Adobe Photoshop and an introduction to inkjet printing. We have established a cost of $800 since the program will actually last over approximately two months (no, obviously not all day long, and you can take the course from your home, your office, or even while on vacation somewhere).

The university here takes credit cards. You do not pay FLAAR anything; the income goes to the university to cover the joint costs of BGSU + FLAAR preparing all of this

Digital Hasselblad, Nikon D-100, BetterLight large format. So you get exposed to all three digital camera formats with a FLAAR course.

Course Grading

So far, everyone who has asked to sign up is already out in the real world working at a job in industry: repro shops, educational institutions, photo studios, fine art glicee, and a wide range of other professions.

In other words, there are no “students” who need course credit. Hence we can avoid “grading.”

People who are working photographers usually already have enough projects of their own, so the above list is primarily if you are enrolled as a student, need a grade, and hence need assignments to be graded.

Subsequent Courses

Additional courses will include scanning and scanners, color management, inkjet colorants and media, RIP software and a host of related subjects. However, in most cases, the initial entry-level focus will always be input. You will not achieve good output if you are only concerned about your printer, your inks, media, and color management. All that knowledge comes to nothing unless you have usable input. A good print starts with a good digital photograph.

There is absolutely no requirement that you take any additional course.

One of the several photo studios in the FLAAR facilities at two universities.

Direct Access to Nicholas Hellmuth

Dr Nicholas Hellmuth will personally teach this course. Yes, naturally his staff will handle many aspects, especially signing up and all the paperwork. But he will be available to answer your questions by e-mail, and by phone at pre-determined intervals if that is easier for you.

One dedicated telephone number will be assigned for this course. This way you can speak to Hellmuth in person. We will have certain hours during the workday (for those who can call from work) and other hours during evenings (for those who should not call from their workplace).

There will be set hours for him to be at this phone. These hours will be posted on the course's web site. We ask that you do not use his home phone, nor his regular BGSU office phone for this course.

There will be times when Dr Hellmuth is in Germany, as well as possibly teaching photography in Malta, at his other university in Guatemala, attending conferences or off consulting. During these times he is constantly gathering additional information on digital photography, so the course is updated from these locations on a weekly basis. When he is at other universities, access to him will primarily be via e-mail. Occasionally he goes to remote areas for digital photography on location; some of these areas, even in the USA, have no e-mail access, but usually such a location shoot is just for a few days.

Nicholas out on location, Lake Atitlan, Guatemala. This means the course material is based on actual photography in a real situation. Here, working with Cambo Ultima 4x5 camera, Rodenstock and Schneider wide angle lenses, BetterLight pano setup, on Manfrotto geared tripod head atop the heaviest and most secure Gitzo tripod from Bogen Photo.

Signing Up

There is no requirement that you be a student in the traditional sense, the course description is more important than the course number. Actually we don't usually assign a course number.

Applications should go to Continuing Education International Programs (at BGSU): toll free 877 650-8165, fax (419) 372-8667. There is a sign-up sheet where you can charge the course fee to your credit card.

Difference between the BGSU version and the UFM version

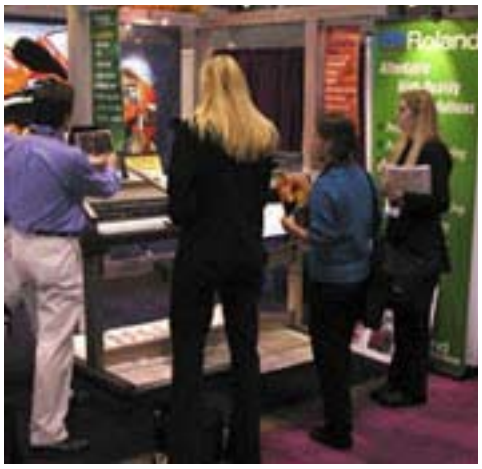
The difference is that the BGSU course is intermediate to advanced, whereas the UFM course is introductory level to intermediate. The UFM course is in-person in Guatemala in the summer; the BGSU course is world-wide via the Internet.

Optional visits to tradeshows with Nicholas Hellmuth

In case you wish to attend PMA photography tradeshow in early March, that is an option at extra cost. BGSU staff will be with you one day at the tradeshow. Of that time you will have instruction for a minimum of one morning and one afternoon personally by Nicholas Hellmuth. You will also receive instruction from professional photographers and managers at specific booths (people who have known Nicholas and FLAAR for years).

Michael Collette, inventor of the BetterLight trilinear scanning (left) with Professor Nicholas Hellmuth (PhotoExpo East)

The purpose of this tradeshow visit is far more than merely showing you all the digital goodies. When you come to a booth with a FLAAR editor you are much more likely to get special attention and in many instances to get access to information not normally shared with the average general public. So if you wish to meet some of the movers and shakers of the digital camera world, Professor Hellmuth he will be glad to introduce you to. He will arrange sessions for you at all the pertinent booths so you can learn the entire range of digital camera technology, CCD and CMOS: entry level, SLR 35mm level, medium format studio level, tri-



linear scanning backs for large format. This visit will include complete introduction to large format inkjet printers (including archival inks and photographic media), high-end scanners, as well as digital cameras themselves.

Tradeshow days will also include learning about digital lenses, lighting for digital photography (tungsten, HMI, strobe, flash, and digital-fluorescent) accessories and all related camera equipment as time permits.

Will also include book reviews: the leading publishers of books on photography equipment will be exhibiting.

PMA tradeshow visit will also include discussion of RIPs: the brains that make large format inkjet printers do all their tricks. Color management includes the three biggest names in color management: X-Rite, Monaco, and GretagMacbeth.

Attending the tradeshow is not required, but is highly recommended.

Unique aspect of this Spring 2004 course

This is the only course on digital photography that includes documentation from Photokina photography tradeshow and then follow-up with direct broadcast from PMA.

This course offers an instructor who has published in National Geographic, in coffee table books in Japan and Austria. He knows 35mm, medium format, and has used 4x5 and 8x10 large format cameras for years.

FLAAR is probably the best equipped independent university-based art photography institute in the country. It is rare for an art history professor to have access to every level of digital technology from $500 Nikon CoolPix up to $97,000 Cruse digital camera system from Germany. Indeed FLAAR is the only university in the North American continent to have this camera (others are in museums in Germany, the Vatican, the Czech Republic, or used in military or police laboratories, etc). Yet the camera is as easy to use as point-and-shoot models. This spring FLAAR will also be testing a ($43,000) digital panoramic camera often used by the German space agency. Nicholas is one of only three people in the USA to have both a Dicomed digital pano system and also a large format BetterLight Pano/WideView turntable system.

Cruse copy stand at BGSU-FLAAR facilities

But don't worry, the focus of this course is on Nikon, Fuji, Canon, Hasselblad, and normal digital cameras that you can afford. Indeed that's why most people take this course, to learn what is the best digital camera for the least amount of money. Do you realize that you can pay $2,000 or $18,000, and essentially get the same level of digital camera? Actually you can get the identical CCD sensor in cameras costing $11,000 to $24,000. Frankly we have the $11,000 model because why pay double for the identical technology. But what if you can get close to that quality for only $2,000!

This course is an unprecedented opportunity to learn about state of the art digital cameras, lenses, digital imaging software, digital lighting, and all in the convenience of your office or home.

Nikon D-100 35mm SLR and 4x5 BetterLight used side by side. The third tripod is about to receive a Hasselblad and Kodak ProBack Plus. This means you learn every one of the multiple levels of digital photography equipment. This helps you learn which class of digital camera is best for your applications.

Course material will all be in English; however you can correspond en español oder auf Deutsch.

Left: Church outside Antigua Guatemala. **Right**: New FLAAR facilities at Bowling Green State University

www.wide-format-printers.org	www.fineartgicleeprinters.org	CLICK HERE TO VIEW EACH FLAAR NETWORK SITE
www.digital-photography.org	www.flatbed-scanner-review.org	
www.laser-printer-reviews.org	www.cameras-scanners-flaar.org	www.large-format-printers.org
www.FLAAR.org	www.ctpid.ufm.edu.gt	www.wide-format-printers.NET

To view the class syllabus, click here

http://www.digital-photography.org/syllabus.htm

Digital Photography for Introductory into Intermediate

- **Digital Studio Photography • Digital Photography outside on location**
- **35 mm, medium format and large format digital photography**
- **As input for wide format printing**
- **How to select the digital camera which is best for your needs**
- **How to avoid choosing the wrong camera, lighting or accessories.**

❑ 2004 Session, March-April. Sign-ups now being accepted

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❑ Comprehensive course and all 30 reports by Nicholas Hellmuth _____ $800

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Bowling Green, OH 43403
USA

You can register at any time but once class is filled we can accept no more registrations, so it helps to register today.

Refunding subject to BGSU (cancellation policies)

* We welcome participants from all countries. A Social Security No. is not required from outside USA; just let us know your Passport # or equivalent. Last semester we had students taking this course from Chile, Mexico, and England from the comfort of their homes and offices in these countries

• To comply with the Hope Scholarship and Lifetime Learning Tax Credit legislation, BGSU now requires all credit and noncredit US students to supply their social security number when registering for classes. Special accomodations available for international participants.

Bowling Green State University is on EO/AA employer and educator

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