AD 150: Color and Composition

FALL 2024

Lecture: Monday 1:00 PM – 3:05 PM | Weston Lecture Hall 2

Labs/Studios: Monday 3:15 - 5:20 PM

Section 001   Martin Short (martin.short@njit.edu)   Campbell 236C

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Review/Critique Sessions/Office Hours scheduled by individual sections and instructors

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# Syllabus

Course Description

Color and Composition is a foundation-level course that serves as an introduction to basic **two-dimensional design** with attention paid to the **impacts and uses of color in design** (including **color theory** and **interaction of colors**), and **an introduction to (two-dimensional) computer graphics**. The multiple-media course combines lectures and videos, laboratory/studio projects, analytic and written work, quizzes, creative and graphic assignments that may span several classes and lasting several weeks, and a cumulative written assessment. Lectures are generally in-person/synchronous with some asynchronous online supplemental materials provided as needed. There are no prerequisites for the course, but as with any design lab or studio course, design projects tend to be open-ended, so a considerable amount of time (that will vary based on individual's abilities and experience, work habits, efficiency, and schedule) outside of class will be required to complete some projects. Assigned labs are expected to be available 24/7 throughout the semester (except on Thanksgiving weekend) to facilitate completion of work. Swipe card access will be required after normal hours. Labs may have up to three sections assigned to them and students from one section should not enter the lab when a class is in session with another section.

With the ubiquitous availability of digital color displays and printing devices, architects and interior designers, artists, game designers, set designers, industrial and product designers, graphic designers, and others can easily integrate color into their design and presentation processes, thereby simulating with great accuracy proposed final products that may be built, printed, and/or exhibited. Furthermore, with digital designers' involvement in the creation of images and virtual worlds for the Internet and entertainment industries in addition to printed/physical media, color takes on an increasing importance and an additional set of characteristics with the addition of light-emitting media to the color palettes of reflective media that have been in existence for centuries. The course is structured to give participants an introduction to traditional color theory and an opportunity to apply it with laboratory exercises and homework assignments. An additional component/focus of the course is a concentration on digital applications and implications of color theory ("electronic color") that address specifics as they impact, and are impacted by, the computer. The course introduces computer graphics (including artificial intelligence) and digital media in a design context.

The course addresses issues of organization, composition, geometry, grids, proportion(s), hierarchy, tension, figure-ground relationships, symmetries, open vs. closed forms, visual balance, and other principles of basic design. Also, the course includes color-focused topics such as psychology of color; design for color-deficient vision; interaction of color; color mixing and color palettes; color reproduction; color models; color composition in art, advertising, product design, interior design, architecture; and so on.

Students will have accounts that will allow all digital work to be accomplished in the School of Art + Design Foundation Labs in Campbell Hall (entrance through the third floor of Weston Hall). Sections are assigned to specific labs. Students are not to enter any lab other than the one to which they are assigned. Traditional media work must be accomplished outside of any NJIT computer labs and brought to class for critique and submission. There are no restrictions about media use in Art + Design studio spaces and those students in an A+D or Architecture studio may also use their own workstations in the assigned spaces in studio and work on traditional media projects there and then bring work to the class for submission and critique.

Readings are intended to supplement lectures and class discussions; and the books are placed on reserve in the Littman Library. Several are available in electronic format (eBooks) for simultaneous use by students. Readings are also meant to be helpful in the completion of various tasks/assignments and provide insight into some of the topics covered in class.
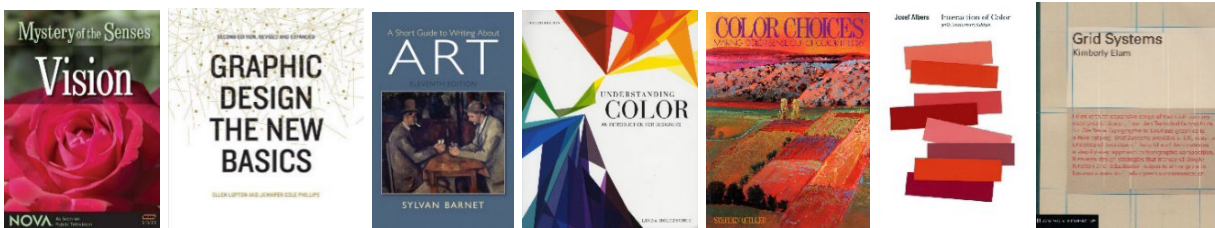
Course Objectives
- ○ Provide exposure to the formal/organizational principles of composition as well as application and use of color in art and design – including industrial design, interior design, architecture, graphic design, package design, information design and presentation, advertising/marketing, web design, entertainment and game design, etc. – i.e., an essential exposure to the fundamental design principles that underlie applications of all design programs and disciplines;
- ○ To enhance overall visual literacy and perception, including an introduction to works of fine art;
- ○ To introduce principles of information literacy and utilize research skills in visual arts;
- ○ To gain perspective and understanding about the history of the use of color in art and design;
- ○ To introduce color models and various ways color can be described that are both media dependent and media independent;
- ○ Provide opportunities to explore color mixing and color analysis with traditional media (e.g., paper collage, watercolor);
- ○ Gain an understanding of, and provide exercises with opportunities to explore, basic two-dimensional design principles using both traditional and digital media;
- ○ To gain an understanding of the differences between color displays and media and how different materials and systems (papers, projectors, printers, etc.) affect the appearance(s) of color;
- ○ To introduce raster and vector computer graphics and an opportunity to learn, practice, and become familiar and relatively proficient (within a limited set of image types/problems) with paint (*Corel Painter*), image processing (*Adobe Photoshop, Corel PaintShop Pro*),

two-dimensional illustration software (*Corel Designer, Adobe Photoshop, Adobe Illustrator*) and two-dimensional compositing software applications (*Corel Draw, Adobe Illustrator*);

○ Provide exposure to a reflective and iterative design process;
○ Provide exposure to criteria used in creating and evaluating 2D composition and the impact color has on the composition(s);
○ To develop a sense of quality of craft that is media independent;
○ To provide opportunity to practice critical writing and communication skills;
○ To provide an opportunity to develop the ability to clearly present a project to others.
○ To comply with **NASAD (National Association of Schools of Art and Design)** professional standards as they apply to all majors that include: provide an introduction to basic design principles; analyze of works in art and design and the establish an ability to critically evaluate these works; development of a an understanding of the common elements and vocabulary of art and design; provide an introduction to use and integration of technology in art and design; and to provide opportunities for students to gain an understanding, and facility of use, in basic principles of color theory and two-dimensional composition (including an introduction to graphic design).
○ To comply with **CIDA (Council for Interior Design Accreditation)** 2020 Professional Standards as listed below:

  ○ **8b – DESIGN PROCESS**: Student work demonstrates the ability to apply knowledge and skills learned to solve progressively complex design problems
  ○ **8c – DESIGN PROCESS**: Student work demonstrates the ability to apply knowledge and skills learned to identify and define issues relevant to the design problem
  ○ **8f – DESIGN PROCESS**: Student work demonstrates the ability to apply knowledge and skills learned to explore and iterate multiple ideas
  ○ **8g – DESIGN PROCESS:** Student work demonstrates the ability to apply knowledge and skills learned to design original and creative solutions
  ○ **8l – DESIGN PROCESS:** The program includes exposure to methods of idea generation and design thinking
  ○ **9b – COMMUNICATION:** Students are able to effectively express ideas in oral communication
  ○ **9c – COMMUNICATION:** Students are able to effectively express ideas in written communication
  ○ **9e – COMMUNICATION:** Students are able to effectively apply a variety of communication techniques and technologies appropriate to a range of purposes and audiences
  ○ **10d – HISTORY AND THEORY:** Students understand the basic context and framework of history as it relates to art.
  ○ **11a – DESIGN ELEMENTS AND PRINCIPLES:** Students understand the elements and principles of design, including spatial definition and organization
  ○ **11b – DESIGN ELEMENTS AND PRINCIPLES:** Student work demonstrates the ability to explore a range of two- and three-dimensional design solutions using a variety of media
  ○ **11c – DESIGN ELEMENTS AND PRINCIPLES:** Students effectively apply the elements and principles of design to two-dimensional design solutions
  ○ **12e – LIGHT AND COLOR**: Students have awareness of a range of sources for information and research about color
  ○ **12f – LIGHT AND COLOR**: Students understand how light and color impact health, safety, and wellbeing in the interior environment
  ○ **12g – LIGHT AND COLOR:** Student work demonstrates understanding of color terminology
  ○ **12h – LIGHT AND COLOR:** Student work demonstrates understanding of color principles, theories, and systems

- ○ **12i – LIGHT AND COLOR**: Student work demonstrates understanding of color in relation to materials, textures, light, and form
- ○ **12j – LIGHT AND COLOR:** Student work demonstrates the ability to appropriately select and apply color to support design concepts
- ○ **12l – LIGHT AND COLOR**: Student work demonstrates the ability to appropriately use color solutions across different modes of design communication

Academic Integrity

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy.

Please note that it is your professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing, or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"   -John A. Pelesko, Provost

Information about the Academic Integrity Policy and links to the code may be found at: https://www.njit.edu/dos/academic-integrity.

To be clear, do your own work (except when group work is assigned), cite sources properly when writing or presenting research, and comply with requirements for examinations, quizzes, and projects. ***UNLESS EXPLICITLY PERMITTED (AND PROPERLY CITED), STUDENTS MAY NOT USE DOWNLOADED IMAGES FROM THE INTERNET OR WORK CREATED BY OTHERS FOR INCORPORATION INTO CREATIVE WORK REQUIRED BY THIS CLASS.*** In other words, do your OWN work! The "default" is – if it's not yours, don't use it. (Photography by the student of existing artifacts and objects may be permitted in the process of creating new, original works. **But derivative work shall NOT be permitted unless explicitly approved by the instructor.)** Any use of generative AI shall be in a manner explicitly permitted by the instructor and must be acknowledged with the submission of the work. Students using AI shall assume all responsibility for the product(s) created and submitted.

Assignments, Grading, Attendance Policy

EVERYTHING COUNTS! Some things count only a little, others a lot. But projects and participation are not optional – they are a required component of the course. Individual projects and assignments will be graded, and the overall semester grade will be determined by a combined average, with each project receiving a weighted value roughly in proportion to the time allotted for it. Although the proportions may be adjusted – and additional or modified assignments may be inserted, the **preliminary** plan for distribution is as follows:

Compositional Exercises	2%
Basic Design/Compositional Collage	5%
Color Wheels, Value Charts, Color Mixing	10%
Painting Project	
Analytical Component	5%
Digitally Painted Facsimile	15%
Color Interaction Project	13%
Analysis-Documentation Project/Presentation	10%
Class Participation	4%
Quizzes	6%
Final Written/Analytical Assessment	15%
Design Application/Graphic Design Project	15%

NOTE: Some assignments will run concurrently and overlap. Due dates are set so that there is enough time, when working regularly, to complete all projects when required. It is up to individual students to balance the work and schedule and decide when to work on each task. Assignments are distributed in advance, in part, to allow for scheduling flexibility by students to complete the work.

NJIT uses the following grades: A/4.0 (superior); B+/3.5 (excellent); B/3.0 (very good); C+/2.5 (good); C/2.0 (acceptable); D/1.0 (minimum); F/0.0 (inadequate).

ALL students (regardless of "home program" at NJIT) enrolled for classes in the School of Art + Design also have an attendance requirement overlaid on the grading criteria. (This requirement/penalty is separate from the participation component of the grade.) No more than three unexcused absences are permitted without a grade reduction. Each unexcused absence above three (starting with the fourth) will result in a full grade reduction for the semester. In other words, four absences would result in a maximum grade of "B" (assuming everything done is of "A" quality), five absences would result in a maximum grade of "C", six in a maximum grade of "D", etc. This means if you have 7 unexcused absences (about half the semester), you cannot pass the course. Students do NOT receive extensions for submission of work due to unexcused absences. Acceptance of late work (with penalty) is at the discretion of the individual instructor. Absences for illness to be excused MUST be accompanied by documentation from professional medical personnel who are NOT members of your family and submitted to the Office of the Dean of Students who, upon approval, will notify the appropriate instructor(s). ***Since religious holidays are known in advance, students who expect to be absent due to religious holidays must notify their lab/studio instructor by the second week of class.*** Absences for religious holidays (assuming proper notification) are considered excused absences and due dates of assignments will be adjusted so that work is submitted as soon as practicable at the conclusion of the holiday.

It is the student's responsibility to get to class or log on to synchronous digitally mediated lectures on time regardless of the delivery format. The instructor is under no obligation to repeat any missed information or provide access to lecture notes or presentation materials to students who arrive late. Nevertheless, it remains the responsibility of the student to learn the material presented in the course. Tardiness for in-person classes is particularly disruptive and rude.

Artificial Intelligence

Generative artificial intelligence has the potential to improve decision-making and enhance creativity and productivity. While it does not have to be used in every (or any) project, it is certainly a tool that could be used to benefit under appropriate circumstances. There may be times when an instructor prohibits the use of generative AI, and times when its use is required. Follow the instructions of your teacher. However, to uphold academic integrity with the use of AI, students must consider the

limitations of AI and use it critically and ethically. Be aware of the possibility of bias, incomplete and/or inaccurate information, plagiarism, and issues of data privacy. Generative AI tools can produce invalid and inaccurate information (also known as "hallucinations"). Students are responsible for any and all information or work presented that is generated in any capacity with AI tools. For graphic endeavors, students must cite the use of AI and document intermediate design steps showing text and prompts along with any images generated by AI. Tool(s) used must be cited. Do not simply copy and paste AI-generated material and claim it as your own (text or graphics). Even re-writing AI-generated output into your own words requires proper attribution. Modifications made by the designer and the way AI-generated work is used must be made clear and documented. In other words, the design and presentation processes must be documented when AI-generated work is incorporated at any step. Finally, for your own protection and to respect the privacy rights of others, do not use your personal data (including NJIT UCID), or that of others, in any prompts for AI generated material. Ever. *The use of AI generative tools in design schools is in the experimental stage. The guidelines above are based, in part, on developmental work and standards generated by the University of New South Wales in Sydney, Australia and Lawrence Technological University in Detroit, Michigan.*

Exams and Quizzes

All three quizzes (about 20 minutes each) and the final examination are expected to be administered in person only. Should circumstances change, quizzes and exams may be moved to an online format in order to protect the health and safety of students, staff, and faculty. Should that happen, students will be required to utilize *Respondus LockDown Browser* and at the discretion of the instructor(s), *Respondus Monitor*. Under those circumstances, students must download the LockDown Browser app. Information and links to instructions and the app itself are found at: https://ist.njit.edu/respondus. READ THE INSTRUCTIONS at least a full week before any online examination or quiz. Make sure the LockDown Browser is up to date. When you do take a quiz, make sure each page fully loads before clicking on "Take Quiz" as some questions will contain images that may load more slowly for offsite students depending on the speed of the Internet connections.

Accommodations for Disabilities

NJIT and instructors will endeavor to make any accommodation required and necessary for the success of students with disabilities. However, in order to receive accommodation(s), disabilities MUST be documented with NJIT Office of Accessibility Resources and Services (201 Kupfrian Hall; oars@njit.edu) and notification of request for accommodation must be made to the instructor by the second week of class. More information may be found at: https://www.njit.edu/accessibility/. No accommodations can be granted "after the fact" unless due to a situation (injury/illness/etc.) that occurs or is documented during the semester. In those instances, accommodations will commence upon notification or observation of the disability. If approved for accommodation(s), it is at the discretion of the approved students whether or not to avail themselves of these opportunities. Failure to utilize approved accommodations will not be considered when preparing final grades or assessments for the course. Please understand that some accommodations are publicly evident (like extended time on project presentations) and utilization of these accommodations will be seen by other students which removes any right(s) to privacy about those accommodations.

Class Delivery Mode(s)

Color and Composition is being offered as a face-to-face, in person class, for all students. Supplemental lectures may, at the discretion of the instructors and when intellectual property constraints are satisfied, be placed online for asynchronous online viewing. Similarly, some videos will be screened in class, while others may be assigned for online asynchronous viewing. Online lectures and videos may be posted for the duration of the semester or, when intellectual property agreements demand, for a defined limited time (generally one week). Individual critique sessions

outside of scheduled class time may be synchronous in person or online via Zoom. In general, class lectures rely heavily on third-party intellectual property which precludes distribution and will not be placed online. When discussions/critiques are held online in a synchronous mode, they will generally be available via Zoom. NJIT also supports Microsoft Teams, Cisco Webex, and Google Meet so students may need to move from one platform to another (especially when there are short-term technical problems with a specific platform). Lab/studio work may be accomplished on site or remotely. Labs are available 24/7 for students to work on digital projects except when other sections are in class. (Analog/traditional media projects must be completed outside of the lab.) Submission of projects will be in the format(s) described on the individual assignments. Students are required to scan work created with traditional/analog media for submission.

Cell Phone Use and Miscellaneous Policies

Use common sense and courtesy when considering cell phone use (including texting). Do not use cell phones when you are in a room with others who are presenting or with whom you are collaborating if you are supposed to be "present" (i.e. paying attention). There is a difference between using the phone as entertainment and using it as a tool to look up information pertinent to a project, or to use the camera to record images and work, or as a calculator when determining the aspect ratio of an image. But do not be rude. The permission to use cell phones during lab/studio work time is strictly and completely at the discretion of the individual section instructor. However, when permitted, students should go into the corridor to speak. Use of cell phones during periods of student presentations or faculty instruction is not approved at any time. There are times when students may be asked to download an app or use their phones during a lecture for certain interactive components of the presentation(s). Please set your phones to silent or vibrate, even outside of class time when working near others who do not want to hear your phone ping every time you get a message.

Lectures may NOT be recorded. Due to the inclusion of copyrighted material/intellectual property within "fair use" provisions, **visual content of the lectures may NOT, under any circumstances, be recorded, photographed, or distributed.** Asynchronous supplemental lectures will generally be available for one week, starting at the class time. While some video/recorded material is available free online, there are others for which NJIT procured specific streaming licenses. In no case can any of these be recorded in whole or in part. In some instances, the videos are available for an entire semester (e.g. Helvetica). In other situations, due to insistence with the owner of distribution rights, access to a video may be limited to a specific time like one week (e.g. The Story of Computer Graphics) which can allow you to watch the film more than once in order to get all of the information presented.

Food and drink are NOT permitted in the labs. Ever. Including "just" water. Do not eat or drink in any computer lab. Do not even bring in food or drink! For those in design studios (not the Foundation Labs) food is permitted at your own risk. But KEEP THE STUDIOS CLEAN. And remember, your keyboards do not drink coffee or eat muffins. And they don't much like rubber cement either. So work cleanly.

Studio and Lab Decorum

The studios and labs are shared, public spaces. Please keep your spaces clean and tidy. Students are to be respectful of one another and not create any type of disturbance or distraction that prevents other students from working in a safe, healthy environment. While silence is certainly not required and group discussion and work frequently encouraged, neither the playing of loud music nor organized (scheduled or spontaneous) athletic events are appropriate in the studios or labs. Do not play music through speakers on your desk – invest in, and use (at a safe, VERY low volume), headphones if you absolutely must listen to music. Do not do this continuously or at an unsafe

volume as long-term hearing loss may occur. (Note: this may be true with, or without, the use of headphones.)

There shall be no posting of any material at one's desk or on one's computer desktop (or any lab computer) as wallpaper or screensaver any images or material that may be deemed offensive to individuals or groups in this public space including (but not limited to) material considered offensive based on gender, race, religious preference, sexual orientation, or physical disability. The nature of politics (global and domestic) and political campaigns may also be controversial. Discussions are fine but remember your point of pride may be another person's irritant. The computers in the lab and the spaces in which they are located are communal. **RESPECT ONE ANOTHER!** This means do not borrow without asking, do not mark up or damage any student's work or property, and respect the shared environment in which you all spend considerable time.

Nobody is permitted to smoke in the studios, labs or any classroom spaces. Moreover, smoke drifts so standing by an open window and trying to exhale outdoors is still a violation and is unequivocally not permitted. In fact, there is no smoking within 25 feet of the entrance or opening to any building on campus. For Weston Hall, the building entrance is defined as the bottom of the ramp. This, by definition, precludes the legal ability of anyone to smoke while standing inside any A+D facility. Students are responsible for any guest(s) in the building. Violation by guests shall be deemed a violation by the student. ***Guests are not permitted in the Foundation Labs without permission of the instructor.***

There is only a limited expectation of privacy on campus and there are security cameras in different locations. If there is an activity that should not be seen by others, it is probably an activity that should not be taking place. On the other hand, while we do have cameras in strategic locations and labs, they are not monitored 24/7. They record, but there may not be someone watching at any given instance. If you see a problem, call NJIT Public Safety in case of an emergency at extension 3111 from a campus phone, or 973.596.3111 from any other phone.

Contact Information
The culture at NJIT is a digital one. There is a lot of information online at NJIT and **email is the official means of communication.** This means that an administrator or teacher may inform you of critical information (like the time and place of an exam, a field trip, change in a due date for a project, etc.) via email and expect you to receive it. It is YOUR responsibility to monitor your "njit.edu" email address. You may forward the address to another email address, but MAKE SURE YOU MONITOR EMAIL COMING TO YOUR OFFICIAL NJIT EMAIL ADDRESS.

Note: Some instructors may use Slack and/or Discord. Some may push notices via Canvas (Learning Management System). It is good advice to go where faculty are. But multiple-section courses (like AD 150) will likely use email. **Monitor your NJIT email!**

Bibliography and Resources
Films/Videos:
Kanopy: https://njit.kanopy.com/ (requires NJIT UCID logon - this is the location of the films "Helvetica.")
STASH Media: https://www-stashmedia-tv.libdb.njit.edu:8443/ (requires NJIT UCID login)
PBS Nova Mystery of the Senses: https://www.dailymotion.com/video/x73wjh3?playlist=x68sly

Tutorials:
CorelDraw Graphics Suite: https://www.coreldraw.com/en/learn/tutorials/
Corel Painter Tutorials: https://learn.corel.com/painting-tutorials/
Ebooks @ NJIT: https://researchguides.njit.edu/ebooks/getting-started

Home Use Discount Software (Corel Painter, CorelDraw Graphics Suite):
JourneyEd.com: https://www.journeyed.com/WAH (and follow appropriate links in dropdown menu, use NJIT.EDU email address)

Required Books:
Albers, Josef. Interaction of Color/Revised Edition. (New Haven: Yale University Press, 2006) ISBN: 978-0300115956 *eBook for online reading*
[The older and original paperback editions from editions dating as early as 1963 are acceptable but the newest edition – the 50th Anniversary/4th Edition from 2013 – has an expanded use of color plates and is, overall, the best version available. This book is not available as an eBook but can be purchased used from various sources.]

Lupton, Ellen and Jennifer Cole Philips. Graphic Design: The New Basics/2nd Edition, Revised and Expanded (New York: Princeton Architectural Press, 2015) ISBN: 978-1616893323 *eBook for online reading and PDF download*
[The primary text that summarizes many, albeit not all, of the design principles discussed in class. The first edition from 2008 is acceptable. The book is good on basic design principles, a bit superficial for color theory. To get more detail about color theory read Fraser's book, How Color Works (see below)]

Recommended Books:
Barnet, Sylvan. A Short Guide to Writing About Art/11th Edition. (Upper Saddle River, NJ: Pearson/Prentice Hall, 2014) ISBN: 978-0205886999
The 10th and 9th editions/used versions are acceptable – this text is useful if you have never written about art and/or are inexperienced in analytical writing. The 10th edition adds material applicable to the analysis of architecture not available in earlier volumes. The 11th edition adds material about digital resources. Even when using AI, you need to edit.] Paperback (Rent for $17 or available online as a PDF for $19

Fraser, Pamela. How Color Works: Color Theory in the 21st Century. (New York: Oxford University Press, 2019) ISBN: 978-0190297220
A thorough explanation of almost all things color – from sources to the effects of colors in combination.

Quiller, Stephen. Color Choices: Making Sense Out of Color Theory. (New York: Watson-Guptill, 1989) ISBN: 978-0823006977
The text is particularly useful in explaining traditional color theory and the use of physical media, especially watercolor, for those students inexperienced in the creation of art with such media. (NO eBook: $23 on Amazon)

Suggested Books/Reference Books:
Adams, Sean. The Designer's Dictionary of Color. (New York: Abrams, 2017) ISBN: 978-1419723919

Adams, Sean and Peter Dawson, John Foster, and Tony Seddon. Thou Shalt Not Use Comic Sans: 365 Graphic Design Commandments. (Sydney, Australia: University of NSW Press, 2012) ISBN: 978-0321812810
eBook for online reading

Adams, Sean, et al. Thou Shall Not Use Comic Sans-: 365 Graphic Design Commandments, University of NSW Press, 2012. ProQuest Ebook Central,
https://ebookcentral.proquest.com/lib/njit/detail.action?docID=877086.
 eBook for online reading

AdamsMorioka and Terry Stone. Color Design Workbook: A Real-World Guide to Using Color in Graphic Design. (Beverly, MA: Rockport Publishers, 2006) ISBN: 978-1592531929

Ambrose, Gavin and Paul Harris. Colour: the sensation produced by rays of light of different wavelengths, a particular variety of this. (Switzerland: AVA Press, 2005). Distributed in the United States by Watson-Guptill Publications. ISBN: 9782940373314

Ashford, Janet and John Odam. Start with a Scan: A Guide to Transforming Scanned Photos and Objects into High Quality Art/2nd Edition. (Berkeley, California: Peachpit Press, 2000) ISBN: 978-0201710977

Berger, John. Ways of Seeing. (New York, NY: Penguin Books, 1977) ISBN: 978-0140135152

Beccia, Carlyn. The Digital Renaissance: Classic Painting Techniques in Painter and Photoshop. (Burlington, MA: Focal Press, 2014) ISBN: 978- 0415841207

Bevlin, Marjorie Elliott. Design Through Discovery: An Introduction. (Florence, Kentucky: Cengage Learning/Wadsworth Publishing, 1994) ISBN: 978-0030765476

Birren, Faber. Color and Human Response. (New York: Van Nostrand Reinhold, 1978) ISBN: 978-0442207878 Bucklow, Spike. Red: The Art and Science of a Colour. (London, UK: Reaktion Books, Ltd., 2016) ISBN: 978-1780236247

Cabarga, Leslie. The Designer's Guide to Color Combinations: 500+ Historic and Modern Color Formulas in CMYK. (Cincinnati, Ohio: North Light Books, 1999) ISBN: 978-0891348573

Chen Design Associates. One-Color Graphics: The Power of Contrast. (Gloucester, Massachusetts: Rockport Publishers, Inc., 2002) ISBN: 978- 1564969231

Clifton-Mogg, Caroline. The Color Design Source Book: Using Fabrics, Paints, & Accessories for Successful Decorating. (New York: Rylands Peters & Small, Inc., 2007) ISBN: ISBN-10: 1841722251

Eckstut, Joann and Arielle Eckstut. The Secret Language of Color: Science, Nature, History, Culture, Beauty of Red, Orange, Yellow, Green, Blue & Violet. (New York City: Black Dog and Leventhal Publishers, Inc., 2013) ISBN: 978-1579129491

Eiseman, Leatrice. Pantone Guide to Communicating with Color. (Cincinnati, Ohio: North Light Books, 2000) ISBN: 978-0966638325

Elam, Kimberly. Geometry of Design/2nd Edition. (New York, NY: Princeton Architectural Press, 2011) ISBN: 978-1616890360 ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/njit/detail.action?docID=4737063
eBook for online reading

Elam, Kimberly. Grid Systems: Principles of Organizing Type. (New York, NY: Princeton Architectural Press, 2004) ISBN: 978-1568984650 ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/njit/detail.action?docID=3387574
 eBook for online reading

Eskilson, Stephen J. Graphic Design: A New History/3rd Edition. (New Haven, Connecticut: Yale University Press, 2019) ISBN: 978-0300233285

Feisner, Edith Anderson. Color Studies. (New York: Fairchild Publications, 2001) ISBN: 978-1609015312

Finlay, Victoria. Color: A Natural History of the Palette. (New York: Ballantine Books, 2002) ISBN: 978-0812971422

Finlay, Victoria. The Brilliant History of Color in Art. (Los Angeles: J. Paul Getty Museum, 2014) ISBN: 978-1606064290

Frankel, Felice C. and Angela H. DePace. Visual Strategies: A Practical Guide to Graphics for Scientists & Engineers. (New Haven, Connecticut: Yale University Press, 2012) ISBN: 978-0300176445

Giorgianni, Edward J. and Thomas E. Madden. Digital Color Management: Encoding Solutions. (Reading, Massachusetts, Addison Wesley Longman, Inc., 1998) ISBN: 978-0470512449

Graver, Amy and Ben Jura. Best Practices for Graphic Designers, Grids and Page Layouts: An Essential Guide for Understanding and Applying Page Design Principles. (Beverly, MA: Rockport Publishers, 2012) ISBN: 978-1592537853
ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/njit/detail.action?docID=3399649
eBook for online reading

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https://learn.corel.com/all-tutorials/

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NJIT Bookstore (973-596-3200)
Amazon.com (http://www.amazon.com)
Barnes & Noble (http://www.barnesandnoble.com/)
Taschen Books (http://www.taschen.com)
Littman Architecture and Design Library (https://archlib.njit.edu/)

Supplies:
Dick Blick Art Supplies
Always check before you go as store hours and details change daily. At the time of this writing, the following Dick Blick Art Supplies stores are open for in-store shopping, curbside pick-up, and delivery.

65 Route 4 West (35 Plaza, Unit #4), Paramus, NJ, 07652 201-843-7702
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NOTE: Bergen County (NJ) malls, supply shops and bookstores are generally closed on Sundays. This county includes the towns of Englewood, Hackensack, Fort Lee, Paramus and Ramsey as well as others. Not all retail outlets in New York City or Essex County, NJ (Newark and West Orange) are open on Sundays. Check with individual stores to confirm hours of operation.

The list above is provided as a service to students. No specific retail outlet is endorsed, and the order of the listing is alphabetical (except for onsite NJIT outlets). Stores open and close all the time. The New York/Northern New Jersey metropolitan area has lost four art supply retailers in the last few years: A.I. Friedman, Lee's Art Shop, New York Central Art Supply, and Pearl Paint. There may be other sources for supplies. Check addresses and hours prior to visiting a store and for your safety, consider ordering online.

Materials

Throughout the term there will be several projects requiring the use of digital and/or traditional media. The traditional media projects will primarily be created with watercolor and cut paper collage. Some of the traditional tools listed below are what a student or designer would typically use in the creation of these products. For example, one expects to cut paper in a collage and then glue to a backing material so an Xacto knife, straight edge for cutting, and rubber cement are listed. The watercolor projects do not require you to lay out diagrams before you apply paint, but you may wish to. For those who are accomplished in watercolor and have a steady hand, it may be possible to complete the work "by eye" without any preliminary pencil layout. Others may want to use a light pencil, triangle/straight edge, compass, and/or scale to lay out the work prior to the application of paint. The lists proposed include most of what you would need to accomplish the work. And the list assumes you have almost nothing. If you have a triangle, for example, that is a different size than the one specified, you may use it instead of purchasing a new one – it should have no impact whatsoever on the quality of the assignments you complete for this class. If you have watercolor brushes, use them. On the other hand, materials used for the actual project submission are required. Everyone must submit watercolor work on the 9" x 12" watercolor paper specified and must use watercolor paints. Everyone will need to cut paper for collage.

Traditional Materials
- A minimum of four different watercolors (tube preferred) that will give you three "primaries" and at least one complement. Recommended colors for the primaries are: cadmium yellow light, ultramarine blue or phthalocyanine (phthalo) blue, and cadmium red or alizarin crimson. You may substitute (if you are having difficulty obtaining the preferred colors) with colors such as lemon yellow or aureolin yellow, cobalt blue and/or cadmium red medium or light, or vermillion. You may, at your discretion, supplement your collection by adding colors such as phthalo green or viridian green, cerulean blue, magenta, cadmium scarlet (cadmium red orange), etc. You may purchase the smallest tubes available (unless you plan to create a lot of watercolors outside of this class for personal use). However, **unless directed otherwise, work shall be individual.** Complements should be selected carefully to make sure that mixing two complements will provide you with a neutral gray. Some complement pairs are: cadmium yellow light and ultramarine violet, phtyalocyanine blue and cadmium scarlet, alizarin crimson and viridian green, cadmium red medium and phthalo turquoise (green-blue), cerulean blue and cadmium red light, and ultramarine blue and cadmium orange. STUDENTS MAY WISH TO DELAY PURCHASE OF WATERCOLORS UNTIL THE RELEVANT IN-CLASS LECTURE.
- Mixing palette for watercolors.
- 9" x 12" cold press watercolor paper (12 to 15 sheet block; ≈ 140 pound weight)

- heavy paper stock or illustration board (white) for collage (assignments will not require sizes larger than 8½" x 11" but you may cut larger sheets into several smaller ones)
- X-Acto Knife: #1 Knife with 15 (or more) #11 blades (note: interior designers and industrial designers are likely to use these throughout their academic career and will find that a box of 100 blades will be more economical over time)
- 12" architects triangular scale
- Rubber cement and rubber cement pick-up
- 18" steel straight edge for cutting (cork bottom suggested)
- 12" x 18" or 18" x 24" cutting mat (required if you do any cutting on NJIT-owned desks or tables) *Note: regardless of where you choose to work – home or dorm or design studio – protecting the furniture is a good idea*
- Lead holder and lead pointer for sharpening lead holder leads
- 2H leads
- Vinyl eraser and eraser shield
- 2 watercolor brushes (#8 and #2 are recommended sizes)
- 8" – 30°-60° plastic triangle and/or 10" – 45°-45° plastic triangle (The triangles will be used to help layout some work created with traditional media. Industrial Design and Interior Design students are likely to want both since they will be building physical models throughout their educational career. Students who do not wish to purchase these may share/borrow from one another.
- Compass (optional)

Students do not need to bring traditional media tools or materials to class unless instructed otherwise. It is recommended that Art + Design students in studio spaces work on traditional media projects in studio. Students not enrolled in the School of Art + Design and assigned to laboratory spaces may NOT do any traditional media work in the labs and are advised to keep the materials at their place of residence and to do the work offsite, then bring to class/lab the work (both in-progress and final submissions) for critiques and scanning.

Students who have already taken AD 111 – Communication in Art + Design: Traditional Media or ARCH 161 – Introduction to Design and Digital Media (or its predecessor, ARCH 163 – Modes of Design Communication I) will have most of the materials required. Students who are or will be taking either of those courses will use most of the traditional tools and consumable materials in those courses as well as this one. Students in Industrial Design and Interior Design are likely to continue to use these tools in their respective design studios. Digital Design students may use these tools, but in more limited applications and in special courses and subjects (e.g. storyboarding, physical computing, etc.).

Digital Materials
Back-Up Systems for Files: In general, this will be accomplished with USB Flash Drives – 32 GB or larger recommended - for temporary back-up and to facilitate off-network file transfer. **ALWAYS have files backed up on at least two physical drives.** (Flash drives do fail, and files are generally unrecoverable.) Flash drives will be critical for students working in the labs. We cannot guarantee permanence of data on lab machines and students are responsible for storing all files (more than one copy so you ALWAYS have a back-up on distinct physical media – two copies of the file on the same flash drive will not help you when the flash drive fails). Alternatively, one can bring an external USB hard drive but there is no guarantee that an open electrical outlet will be in close proximity to the workstation. Cloud storage like Google Drive is another location to store files. But you may be required to submit some files on physical media simply because download time when everything is on Google Drive can be onerous for the faculty member. YOU ARE RESPONSIBLE TO HAVE MEDIA TO BACK UP ALL WORK ON DIFFERENT DRIVES.

Headphones and mic. This may be necessary depending on your circumstances and whether you have somewhere else to watch supplemental online material. You may be listening to asynchronous material while other students are working. This is a courtesy if you are working in the lab (or in a studio). There is no guarantee that you will be all alone when you listen to this material. If you have a separate laptop and can go somewhere outside of the lab, then it may not be required unless you want remote critiques on your work. If you are listening to synchronous material, the feedback from speakers will make it difficult for everyone to hear. The microphone allows you to have reasonable conversations with critics and peers when working on projects or presenting work. If you don't have these or need to use them now, you are likely to need them in the future.