Editorial

Guidelines for the Scholarly Use of Images

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As academic radiologists, we use a variety of images in our educational "products" regularly—whether they are lectures, websites, papers, digital media, or other resources. As the ability to download images from the Internet has proliferated, the need for us to have a basic understanding of copyright laws and how they might be applied to our products has increased. This article aims to provide answers to the most common questions. **Please note that this article is for informational purposes and should not be considered legal advice.**

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INTRODUCTION

A s radiology educators and researchers, we incorporate images in our "products" every day. These images might be radiological images or other types of images, and can come from a variety of different sources—our own institution, other institutions, colleagues, books, journals, the Internet, or other digital media. We use them in different ways: lectures and workshops, handouts, papers, books, websites, and other free or commercially distributed digital teaching resources. Our lectures might be given locally or nationally, might be recorded and posted online, or distributed by other means. They might be "free" or at a paid-for Continued Medical Education (CME) course. It is crucial that we are aware of the scope and application of copyright laws to prevent unintended legal consequences.

Intellectual property rights include copyright, trademarks, patents, and publicity. Copyright laws are complex and confusing, representing a subspecialty in the legal profession. The same rules apply to visual works as they do to written (and other) works, but the proliferation of the Internet and the ease of image distribution and downloading have markedly increased the potential for copyright infringement as well as the challenges of enforcing the laws. Copyright laws were written long before digital communications proliferated and do apply equally to the Internet; recent legislation, such as the Digital Millennium Copyright Act, has tried to provide more specific legislation in this arena. "Fair Use" doctrine may provide a defense to educators, but it and its limits must be understood. Infringement of copyright may result in fines, damages, and lawyers' fees; the fine alone can be up to \$150,000 per work (per image) if the infringement is found to be willful (deliberate).

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There is little clear guidance in the recent medical literature that specifically applies to the use of scholarly images in medical education and publication. Sterns and Westenberg in 1995 provided an excellent review of the existing laws at that time as they applied to academic radiology generally (1). To simplify this complex topic as much as is feasible and provide practical guidance for academic radiologists, I have developed the following FAQs. *Please note that this article is for informational purposes and should not be considered legal advice.* A shorter version of this article appeared in the March 2014 Alliance of Clinical Educators in Radiology Newsletter (2) and as a presentation at the Association of University Radiologist's Annual Meeting (accessible to AUR members) (3).

COPYRIGHT FAQS AS THEY APPLY TO THE SCHOLARLY USE OF IMAGES

What is Copyright?

"The exclusive legal right to reproduce, publish, sell, or distribute the matter and form of something (as a literary, musical, or artistic work)" (4). Copyright protects the original expression of ideas, not the ideas themselves.

What can copyright apply to?

Copyright can apply to any *original* work—including images, music, written material, or other solid forms of creativity. As noted above, it does not apply to ideas. For example, if you tell someone about a work you are thinking of creating, and they take your idea and create a work, you cannot sue them for copyright infringement. It does not apply to facts, works of the U.S. government, mathematical formulae, or products that are considered utilitarian. Clothing, for example, is considered utilitarian and cannot be copyrighted—although the fabric, buttons, and buckles used to make it can. An exact photograph of a work of art (eg, the Mona Lisa) is not "original" and therefore not copyrightable.

What is the difference between copyright infringement and plagiarism?

Plagiarism is the practice of taking someone else's work or ideas and passing them off as one's own—avoided by

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appropriate citation or attribution (5). In a lecture, this would be avoided by including the source (such as a website of a downloaded image). For radiological images, *plagiarism* is unlikely to be a legal issue (as these are not created per se by the "author"), but certainly could be for a diagram, photograph, or a graph. *Copyright infringement* occurs when a copyrighted work is reproduced, distributed, performed, publicly displayed, or made into a derivative work (see below) without the permission of the copyright owner. Note that acknowledging the source of material in a footnote or elsewhere does NOT protect you from copyright infringement; it only protects you from plagiarism.

Are there other intellectual property rights that might apply to images?

Some images are also protected by trademark law. Individuals (both patients and non-patients) also control the use of their own images (eg, a photograph or an identifiable medical image) in a variety of ways.

Who owns the copyright on medical images?

Interestingly, this appears not to be clearly defined or as yet contested in the courts; one interpretation that has been used is that the institution owns the copyright where the image was taken when images are anonymized, and the patient owns the copyright for identifiable images (6). However, according to the 2014 draft of the U.S. Copyright Office's Copyright Compendium (7), "the Office will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author." Medical images are specifically referenced as examples. Note however, that this is the interpretation by the agency and not law, and in countries other than the United States the laws may differ.

The Health Insurance Portability and Accountability Act (HIPAA) and similar privacy and data protection laws restrict the reuse of identifiable patient images. Just because images are in your teaching file does not mean you own copyright on them! This leads to an interesting question—when submitting an article, chapter, or book for publication, we are often asked to sign an agreement with the publishing company that gives them the copyright to all content, including the images (8). If we do not own the copyright on those images ourselves, how can we give them the copyright?

How can I get copyright protection for an image or resource that I have developed?

Formal copyright registration is generally unnecessary, although it provides additional legal protection in the event you need to bring a copyright infringement claim against an apparent violator. Copyright is automatic and belongs to the originator of the work as soon as it is converted into "lasting media" (ie, no longer an idea). This includes material in a digital format. Many graphical programs will allow you to embed a digital watermark in your image if you wish, or you can add a copyright mark, date, and your name, eg, "© 2015 Petra Lewis." This does not prevent copying of course, but does alert the downloader that this is a copyrighted image and helps eliminate any "innocent infringement" defense in the event the image is used without your consent. If you do not have a copyright statement or mark on an image (or other product), it is more difficult to prosecute its misuse. If there is more than one contributor to the image, they may both own copyright.

For more information on how to register a copyright with the U.S. Copyright Office, please visit http://www.copyright .gov/fls/sl35.pdf.

Are there any exemptions that allow us to use images educationally?

There are several legal doctrines that provide qualified support for the educational use of copyright material including images: Fair Use, the "Teaching Exemption," and the TEACH Act (see Fig. 1).

What is the Fair Use doctrine?

"Fair Use" (also known as "fair dealing" in some countries) provides a balance between the interests of the public and the rights of the individual (9). According to the Copyright Act, the use of copyrighted material "for purposes such as criticism, comment, news reporting, TEACHING (including multiple copies for classroom use), SCHOLAR-SHIP, or RESEARCH, is not an infringement of copyright." It can allow for a limited and reasonable use of copyrighted material. Note that it does NOT prevent you from being sued and should not be construed as a reason not to proactively obtain permission from the rightsholder of the material; it may however provide a successful defense in the event you have not done so and the rightsholder pursues a claim against you for damages. The application of the Fair Use doctrine is highly subjective and specific to any individual case and depends on multiple factors evaluated and weighed by a court.

What factors are assessed in Fair Use litigation?

The four factors that are considered in Fair Use litigation are also the ones that you should consider when reviewing your use of any copyrighted images.

- 1. The nature of the original work
- 2. The purpose of your use (eg, educational vs commercial)
- 3. The potential effect of your use upon the market for the work (does your use of this material affect the market of the original?)
- 4. The amount of material. The more of the original work you use, the less likely it is to be considered Fair Use by a court—for example, copying an entire book as opposed to two paragraphs from a book. As a general rule, if you are trying to make money from your use of the image, this is less likely to be considered Fair Use. Although no single factor is conclusive, if the originator of the work was using these images or material commercially and can show that you have impaired his or her ability to make money through your use of the material, again, this is unlikely to be Fair Use. One radiological example might be: if you downloaded and distributed a large amount of material from a site such as STATdx[™] to residents, it

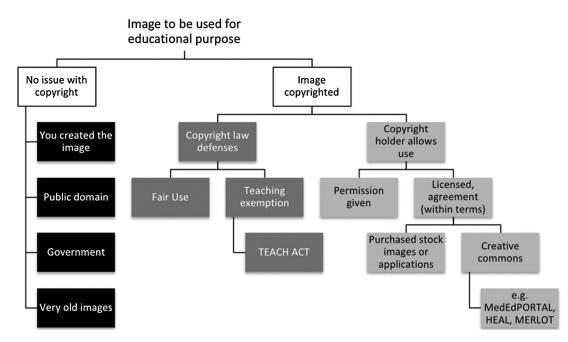


Figure 1. Copyright flowchart for images used exclusively in education. Modified from http://www.uams.edu/oed/CopyrightModule/index.html with permission.

might reduce the number of subscribers they have. Using one of their images in a talk you are giving at a noncommercially sponsored CME course whose enduring materials will not be available online or sold afterwards is more likely to be found to be Fair Use by a court; however, obtaining permission prior to this use is HIGHLY recommended.

A fifth factor, any transformation of the material (see below), can also be applied as part of Fair Use analysis.

Can I use any images I want as long as I use them for educational purposes?

Section 110 of the Copyright Act (10) provides an additional defense to an infringement claim supplemental to the "Fair Use" doctrine by exempting from copyright infringement the "performance or display of a work by instructors or pupils in the course of face-to-face teaching activities of a nonprofit educational institution, in a classroom or similar place devoted to instruction." Note, however, that this excludes not only for-profit institutions but also any uses of copyrighted material beyond performance or display; in other words, it does not cover photocopying or distributing the material, posting the material to a course website such as Blackboard, or using the material commercially (11).

What is the "TEACH Act"?

The Technology, Education and Copyright Harmonization Act, commonly known as the TEACH Act, became law in 2002. This law updated Section 110 copyright policy specifically with reference to distance learning courses. It extends display and performance rights by accredited, nonprofit educational institutions to online distance learning and course management systems, but is limited to those "reasonable and limited portions," which could be displayed and performed during a live classroom session and does not include the transmission of textbook materials or materials "typically purchased or acquired by students." This also includes copied exam or other test materials. Additional details of the TEACH Act are summarized by Kenneth Crews, Director of Columbia University's Libraries/Information Services Copyright Advisory Office (12).

What is a Creative Commons License?

Creative Commons (CC) (http://www.creativecommons .org) is a nonprofit organization that allows individuals to assign their intellectual property a free "license" giving third parties the right to use, share, or even build on their work. You can make any of your original works, including images, available under a CC license. You define: if you require the work/derivatives to be attributed to you; if they can be modified and/or used commercially; or if you wish to put them completely in the public domain (13). This enables others to know how they can use your intellectual property without fear of copyright infringement. It does not take away your ability to claim infringement if the scope of the license has been breached; standard copyright law still applies. These licenses effectively define a contract between the author and the users of the material. Any uses prohibited by the express terms of a CC license (eg, commercial use if the CC license has an "NC" [noncommercial] restriction) can be granted at the discretion of the owner of the license; in other words, you need to request permission as you normally would with copyrighted material. MedEdPORTAL, Wikipedia, and Flickr, among other sites, use CC licenses for their material. The appropriate CC license logo can be included on, or below, an online image.

What is the public domain?

Works in the public domain are those whose copyright has expired, been forfeited, or are inapplicable—such as works created by the U.S. government. Public domain works can be freely used for any purpose, including commercial without fear of copyright infringement, although the original source should always be acknowledged in order to avoid plagiarism.

Does copyright expire?

Under the U.S. law, copyright expires 70 years after the death of the author or 120 years after creation of the work if anonymous or death is not known. Hence, images produced before the 1900s are likely all in the public domain and many from the early 20th century are also. The current cutoff date is 1923.

Can I use an image I have published previously in another publication or product?

Typically, the publisher now owns the copyright so you would need to contact the publisher for permission, which should not be unreasonably withheld. Many publishers, however, have author rights policies allowing authors to reuse images or excerpts from their prior works for scholarly non-commercial purposes without formal permission, provided that they acknowledge the source; see for example Elsevier's journal author rights policy found here: https://www.elsevier.com/about/company-information/policies/copyright/personal -use. Radiology/Radiographics also allows authors (from 4/2003 issue on) an automatic license to reuse their own images (see http://www.rsna.org/Policies.aspx), and recently the American Journal of Roentgenology (AJR) has developed a similar policy (14).

What about if I add a citation on the bottom of image or it is watermarked?

Unless the relevant publisher's author rights policy applies, this just protects you against plagiarism, and copyright laws would still apply.

I am making a radiology webpage for my department, what if I just link to images on another site—does that infringe copyright?

Generally speaking, linking to another page on the Internet does not infringe copyright, although it is best practices to confirm that the page to which you are linking is authorized to host the particular content. This is, however, a controversial area of Internet law that may change. If by linking you avoid any firewalls put up by that author, it could be considered an infringement; as it is if the sites' use of the images is illegal.

If I alter an image, is it still covered by the original copyright?

It depends. Unless the alteration is substantial, it would be considered a "derivative work." The copyright owner of an original work has the exclusive right to create derivative works. This includes changing the size, cropping, annotating with words and images, or changing the color, etc. On the other hand, if a work is altered to such an extent that it is substantially different from and no longer resembles the original work, it may no longer be considered a derivative work and may at most need to acknowledge the original work as "Based on" or "Data from," depending on the type of work (figure vs table, etc.). This is often a judgment call, and when in doubt permission should be sought. Please also note that medical images should never be digitally manipulated for publication in a way that changes their scientific content even if never published previously (annotations and grayscale adjustment is acceptable, removing or adding lesions is not!) (15). Some journals may require that original unaltered images be also submitted.

What about a different slice from the same CT scan series?

Each image from a CT scan series would have a separate copyright.

What is "transformation" of a work?

Transformation is when the image is being used for an entirely different purpose than its original—say a radiograph was converted into an art form. This is one of the factors that are considered when copyright infringement cases are being reviewed.

I gave a lecture that was recorded at a national conference and it is now available on their website. If I used copyrighted images in my lecture without obtaining permission, will I be covered under Fair Use?

It depends. It is possible that the recording could be used in future for commercial purposes—such as distributed as a CME CD-ROM or posted on a website that requires payment or a subscription to access. As best practice, you should obtain copyright permission for any images that you yourself did not create for the lecture, or substitute copyright-free images. Images in materials that are behind a firewall (eg, institutional password protected access) may be more likely to fall under Fair Use, but the other criteria discussed previously apply. One can never assume Fair Use as it is a legal defense, which may or may not be successful in a particular case. Posting lectures on YouTube or a similar site that contain images to which you do not own the copyright raises the same questions of copyright infringement. This is more likely to happen if the images had commercial value to the original author.

What about graphs and tables from articles or other sources?

Graphs and tables in complete form are considered under the same copyright laws as other original works. Data contained within the text of an article typically are not however, and can be used in another source (eg, if you make your own graph from it) as long as credit is given to avoid plagiarism (5).

Do I own the IP on all the images I create at work?

Generally speaking, if an employee creates a work (eg, image) in the course of his or her employment, the employer owns the copyright as it is considered a "work (made) for hire." This is a sticky area—many institutions have rules that state that the institution owns the intellectual property rights on everything that you create that relates to your work, even if you are creating that work (eg, a teaching CDROM, or a book) outside of working hours. Whether these rules are enforced may depend on faculty contract provisions and also the sum of money involved—small royalties on a textbook are unlikely to be contested, but a larger commercial product such as a patent might well be. It is highly recommended that you check local institutional policy if a commercial product is involved. If you are transferring copyright to a commercial company, ensure that the terms of the agreement allow you to use that product in your personal teaching at your current and future institutions—otherwise you may have to pay to use it.

When do I need to get a formal permission to use an image that I do not own copyright on?

If you are going to publish the image in a journal, book, CDROM, or other durable commercial medium, including online commercial products, you must have written permission as this would not be considered Fair Use. The copyright owner has no duty to license and you may not even get a response when you request permission. Permission between major publishers is generally granted as a routine matter, although subject to permission fees in certain cases. It is always worth making requests as early in publishing process as possible given the volume of requests some publishers receive; their turnaround time may not correspond to your deadline. Many publishers or institutions have form letters for requests that you can use for those rightsholders who will accept these forms. It would be wise to avoid the use of any commercially available images (eg, stock images) unless you have explicit permission to use them.

How can I find out who owns the copyright on an image on the web?

This can be difficult, particularly as images proliferate over the Internet so a particular source of the image may not be the original source. There is an option in Google Image that allows you to "search by image," and identifies pages (remarkably accurately) containing the same image. Depending on the image, this may allow you to identify the correct rightsholder to contact, but often hundreds or thousands of iterations of that image are online. Documenting your efforts to try to track down ownership is not an absolute defense from infringement, but can show good faith effort if you fail to identify an owner and decide in consultation with your publisher contact to proceed with the use of the image anyway. For commercially published material, the Copyright Clearance Center (www.copyright.com), which includes Rightslink's automated permission-granting service, is frequently an option.

What are "stock" images and how can I use them?

Stock images are those available from an image database for reuse for a fee by various commercial companies, such as ShutterstockTM. They provide a license to use these images under very specific conditions, including commercial applications. They routinely use software that searches and tracks for copyright infringements of their material.

Are any images copyright-free or licensed for limited use?

 Works in the public domain are copyright-free, some sources can be found at http://en.wikipedia.org/wiki/ Public_domain.

- Many institutions have specific licenses for the educational use of materials (see your institutional library website).
- 3. You can also use images from one of the several copyright "free" image depositories that are listed at this site: http://www.makeuseof.com/tag/6-free-websites-public -domain-images-free-stock-photos/.
- 4. The Health Education Assets Library at the University of Utah, http://library.med.utah.edu/heal/, contains free available images.
- 5. You can search for and use images that have a CC license under the criteria of the specific license (see CC site [13]). These are not copyright "free," but owners have given permission for specific uses. Both Google[™] and Flickr[™] allow you to search for material that has a CC license. In Google Images, select "Search Tools" and "Usage Rights."
- MedEdPORTAL, www.mededportal.org, has thousands of educational resources, some images based under CC licenses.
- 7. MERLOT (Multimedia Educational Resource for Learning and Online Teaching) at www.merlot.org has imagebased resources that can be used for noncommercial use. Please note that this would not usually cover republication by a commercial publisher, even if the author is not directly being compensated, meaning that permission would need to be obtained in these cases.
- 8. Most MS Office programs have an image dataset with them that you can use (click "insert clip art" and search).
- Apps such as drawMDTM (available on iPad) allow you to use a basic set of modifiable anatomic images to create your own medical images, but these cannot be used commercially or uploaded to a website (check the terms of use carefully).

I see a particular image everywhere, so does that mean it is in the public domain?

No, how often you might see an image does not affect copyright protection. Permission could have been granted to reuse the image in multiple other sources, or these reuses could simply be unauthorized. Public domain has nothing to do with how often something is used, it is a specific legal status based on when and under what circumstances an image is created (see above).

Can I print, or post online, lecture handouts for my students or residents that contain images for which I have not obtained approval from the author?

Fair Use principles and Section 110's educational exemption provide limited guidance here. According to one argument, one handout per student (and they are not being charged for it) could be considered Fair Use the first time a session is taught, but permission would be needed for subsequent courses (16). An additional factor to consider would be how much material you are copying—handing out an entire photocopied textbook or a significant portion of one is unlikely to be considered Fair Use. As in any Fair Use analysis, however, a court would make the ultimate determination. Make sure that copyright work is attributed (©year of publication, copyright owner) and include a notice such as "This PowerPoint presentation includes copyrighted materials provided for the educational use of [audience] and may not be further distributed." Putting materials behind firewalls that restrict access and only making them available for a limited period are best practices that increase copyright compliance.

Help! I just got a 'cease and desist" letter about an image on my website. What should I do?

The Digital Millennium Copyright Act 1998 (DMCA) is an effort to apply intellectual property rights to digital media, including the Internet (17). It is complicated and farreaching and may not always be applied appropriately, but in essence if you get a DMCA cease and desist notice you should remove the contested posted material to save yourself a lot of bother. If you feel strongly that the material should stay and is covered under Fair Use, you can contest it legally, but it is a good idea to remove the image while you contest it to avoid further damages.

So how do I keep myself out of trouble?

- Best practice is to always seek permission before using copyrighted material. Most copyright owners are happy to give it. You should at least show that you have made a reasonable effort to get permission. Publishers have forms online or you can send a letter to the copyright owner specifying the image and your planned use (including the audience, frequency/period you plan to use it).
- For any commercial or potentially commercial use, make sure that if it is not your original work, you have obtained permission from the rightsholder to use it.
- Do not use "stock images" unless you have paid for them even in educational presentations.
- If you have the image under a licensing agreement, eg, a paid for stock image, institutional license, or a CC license, make sure that you read and understand the terms of the agreement.
- Use images that are copyright- and/or permission-free (see above), or take your own photographs.
- Redraw diagrams where possible so they are substantially different from the copyrighted originals, using an institutional medical illustrator or using software programs such as Photoshop[™] (18).
- Do not crop off copyright, CC, watermarks, or other indicators of attribution from images.
- Do not post lectures online that contain images you do not have copyright for especially on public websites.
- Get permission from publishers to reuse your previously published images unless you have an explicit statement in writing that this use is covered by the publisher's author rights policy.
- Always acknowledge the original source of the material, including CC-licensed and public domain images.
- Check your institutional code of practice and keep to its guidelines as this will provide you with some protection.

- Be aware of the Fair Use check list found here http://citl.indiana.edu/files/pdf/fair_use_checklist.pdf although also recognize that the final determination can only be made by a court.
- If you should receive a cease and desist notice, take down the material immediately.

How can I learn more about this topic?

The U.S. Copyright Office at www.copyright.gov has excellent circulars regarding specific elements of copyright law (19).

The University of Arkansas has a nice copyright module that you can go through: http://www.uams.edu/oed/ CopyrightModule/index.html.

Columbia University has excellent resources, https://copyright.columbia.edu/, as does the University of Texas, http://copyright.lib.utexas.edu/.

KEY TAKE HOME POINTS

- Copyright laws that protect the intellectual property of authors apply to most images that we use in radiological education and publishing.
- It is not clear if medical images in themselves are copyrightable under the U.S. law, but if previously published assume they are.
- The laws are complex, but ignorance of the basic tenets is not a defense in case of infringement litigation.
- Especially where there is any potential commercial use of an image (however loosely defined), copyright permission should always be sought.
- Making changes to an image usually does not circumvent the need to obtain permission unless the changes are substantial.
- Most journals require the transfer of copyright to them at the time of manuscript acceptance.
- Fair Use doctrine and the educational exemption may provide a defense from copyright infringement in many educational venues, but it will depend on what the image was originally used for, how you used it, the amount of the original material you used, and the potential financial impact to the original author.

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