

Literature assignments

For 711/856 students: read recent articles on a specific problems in genomics and answer a set of short essay questions.

First assignment: *Scientific Integrity*
Due September 29th (next Tuesday)

4 -6 additional assignments on topics such as

History of Sanger sequencing	Ancient DNA
Next generation sequencing	Benchmarking MSA
Assembling next-gen sequence data	Next-gen sequencing in medicine
ENCODE (ENCyclopedia Of DNA Elements)	

Literature assignment 0

- *The codex of science: honesty, precision, and truth—and its violations.* TF Luscher, Eur Heart J(2013) 34, 1018–1023.
- *Avoiding plagiarism, self-plagiarism, and other questionable writing practices: A guide to ethical writings,* M. Roig, Office of Research Integrity, NIH.
- *A case of plagiarism: Lessons for Editors, authors, reviewers readers and plagiarists,* JG Alspach, Crit Care Nurse, 2014
- You may read additional materials if you wish. If you do, you must cite your sources.
- Your grade will depend on the content of your answers. You will not be graded on the correctness of grammar and syntax.

Why cite?

- Citations reflect *your knowledge of the field* and *your careful and thorough exploration* of your sources.
- Citations *help readers understand the context* of your argument.
- Citations allow you to *acknowledge those authors who made possible particular aspects of your work.* Failure to provide adequate citations constitutes plagiarism.
- Citations, by delineating your intellectual debts, also *draw attention to the originality and legitimacy of your own ideas.*

<http://www.dartmouth.edu/~sources/about/what.html>

When to cite?

- Cite sources for all verbatim quotations of five or more consecutive words.
- Cite sources from which you paraphrase or summarize facts or ideas.
- Cite sources for ideas or information that could be regarded as common knowledge, but which you think your reader might still find unfamiliar.

Some examples ...

<http://www.dartmouth.edu/~sources/about/what.html>

The original text:

The main image in *Othello* is that of animals in action, preying upon one another, mischievous, lascivious, cruel or suffering, and through these, the general sense of pain and unpleasantness is much increased and kept constantly before us.

More than half the animal images in the play are Iago's, and all these are contemptuous or repellent: a plague of flies, a quarrelsome dog, the recurrent image of bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, wolves, goats and monkeys¹.

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

Students paper:

The majority of the animal images in the play are Iago's, and all of these are contemptuous or repellent. He refers to a plague of flies, a quarrelsome dog, bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, goats and monkeys. Through these images the general sense of pain and unpleasantness is increased and kept constantly before us.

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1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

Not OK: Verbatim plagiarism

Students paper:

The majority of the animal images in the play are Iago's, and all of these are contemptuous or repellent. He refers to a plague of flies, a quarrelsome dog, bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, goats and monkeys. Through these images the general sense of pain and unpleasantness is increased and kept constantly before us.

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1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

Students paper:

I believe that the main image in Shakespeare's tragedy, *Othello*, is that of animals. These creatures are constantly in action, preying upon one another, and they are depicted as mischievous, wanton, cruel or suffering. By Shakespeare's ingenious use of these animal images, the general sense of pain and unpleasantness that pervades the entire story is much increased and kept constantly before the reader.

<http://www.dartmouth.edu/~sources/about/what.html>

The original text:

The main image in *Othello* is that of animals in action, preying upon one another, mischievous, lascivious, cruel or suffering, and through these, the general sense of pain and unpleasantness is much increased and kept constantly before us.

More than half the animal images in the play are Iago's, and all these are contemptuous or repellent: a plague of flies, a quarrelsome dog, the recurrent image of bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, wolves, goats and monkeys¹.

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

<http://www.dartmouth.edu/~sources/about/what.html>

Not OK:
Mosaic plagiarism

Students paper:

I believe that the main image in Shakespeare's tragedy, *Othello*, is that of animals. These creatures are constantly in action, preying upon one another, and they are depicted as mischievous, wanton, cruel or suffering. By Shakespeare's ingenious use of these animal images, the general sense of pain and unpleasantness that pervades the entire story is much increased and kept constantly before the reader.

The original text:

The main image in *Othello* is that of animals in action, preying upon one another, mischievous, lascivious, cruel or suffering, and through these, the general sense of pain and unpleasantness is much increased and kept constantly before us.

More than half the animal images in the play are Iago's, and all these are contemptuous or repellent: a plague of flies, a quarrelsome dog, the recurrent image of bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, wolves, goats and monkeys¹.

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

<http://www.dartmouth.edu/~sources/about/what.html>

Not OK:
Uncited paraphrasing

Students paper:

In *Othello*, Shakespeare makes frequent use of animal imagery. The specific images he uses are generally distasteful and convey to the reader a constant impression of conflict and misery.

The original text:

The main image in *Othello* is that of animals in action, preying upon one another, mischievous, lascivious, cruel or suffering, and through these, the general sense of pain and unpleasantness is much increased and kept constantly before us.

More than half the animal images in the play are Iago's, and all these are contemptuous or repellent: a plague of flies, a quarrelsome dog, the recurrent image of bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, wolves, goats and monkeys¹.

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

<http://www.dartmouth.edu/~sources/about/what.html>

OK:
Appropriate citation

Students paper:

In the play, *Othello*, the character of Iago is associated with unpleasant animal imagery[1]....

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

The original text:

The main image in *Othello* is that of animals in action, preying upon one another, mischievous, lascivious, cruel or suffering, and **through these, the general sense of pain and unpleasantness is much increased and kept constantly before us.**

More than half **the animal images in the play are Iago's, and all these are contemptuous or repellent: a plague of flies, a quarrelsome dog, the recurrent image of bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, wolves, goats and monkeys¹.**

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

<http://www.dartmouth.edu/~sources/about/what.html>

Not OK:
Excessive quotation

Students paper:

The majority of "the animal images in the play are Iago's, and all of these are contemptuous or repellent". He refers to "a plague of flies, a quarrelsome dog," "bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, goats and monkeys." "Through these" images "the general sense of pain and unpleasantness is increased and kept constantly before us." [1]

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

The original text:

The main image in *Othello* is that of animals in action, preying upon one another, mischievous, lascivious, cruel or suffering, and through these, the general sense of pain and unpleasantness is much increased and kept constantly before us.

More than half the animal images in the play are Iago's, and all these are contemptuous or repellent: a plague of flies, a quarrelsome dog, the recurrent image of bird-snaring, leading asses by the nose, a spider catching a fly, beating an offenceless dog, wild cats, wolves, goats and monkeys¹.

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

OK:
Appropriate quotation

Students paper:

Caroline Spurgeon uses the words "contemptuous" and "repellent" in describing the animal imagery associated with Iago in *Othello* [1]. In my opinion, her choice of words indicates that...

1. Caroline F. E. Spurgeon, *Shakespeare's Imagery* (Cambridge: Cambridge UP, 1935) 335.

<http://www.dartmouth.edu/~sources/about/what.html>

What to cite?

Primarily: *refereed, archival* materials. (Archival materials are materials that are available in libraries or bookstores, have an ISBN number, etc.)

- Books
- Journal articles
- Refereed conference proceedings

Avoid:

- Websites, news stories, photocopied workshop handouts, personal communications.
- *Wikipedia is not a refereed archival source. (But, the external references may be useful.)*

How to cite Citation formats

Formal publications:

- Journals use a uniform citation style for all articles in the journal. The style is typically specified in "Information for Authors" on the journal's website.
- Check out CMU libraries citation site for more information about citation styles:
<http://guides.library.cmu.edu/citationguides>

Some examples...

TIGS-1072: No. of Pages 10

ARTICLE IN PRESS

Trends in Genetics xxx xxxx, Vol. xxx, No. x

Review

In-text references: numeric

The evolutionary history of a gene is informative about its function. Gene age has been used productively in studies ranging from genome-scale statistical analyses to studies of specific gene families. The link between the age of a gene and when it is expressed during embryonic development is a powerful example. Species in many phyla progress through a 'phylogenetic' stage, in which species with highly divergent adult morphologies display dramatic phenotypic similarities. This relation between ontogeny and phylogeny has been known for decades, but its molecular basis is still not fully understood. A recent analysis of the phylogenetic age of the genes expressed across development in zebrafish, flies, and nematodes demonstrated that genes expressed during the phylotypic stage are significantly 'older' than those expressed during earlier and later developmental stages that show species-specific characteristics [2]. Gene origin analysis has also demonstrated that many functional attributes of eukaryotic genes are associated with their time of origin. For example, younger genes in fungi, insects, and mammals have higher rates of evolution [3–5] and experience more variable selection patterns [6,7] compared with older genes. In several yeast species, young genes have fewer physical interactions and are enriched for different functions compared with old genes [8–10]. Young genes are expressed in fewer tissues [11,12] and are regulated by fewer genes [13] in humans.


The specific mechanism that gave rise to a new gene also influences its functional fate (reviewed in [1,14]). It was long thought that duplicated genes are less likely to be essential compared with their singleton counterparts due to the potential for functional overlap and compensation. This pattern was observed among duplicate genes in yeast [15], but conflicting results were obtained in mouse [16–18]. By stratifying genes in order of their age, we demonstrated that genes expressed during the phylotypic stage are significantly 'older' than those expressed during earlier and later developmental stages that show species-specific characteristics [2]. Gene origin analysis has also demonstrated that many functional attributes of eukaryotic genes are associated with their time of origin. For example, younger genes in fungi, insects, and mammals have higher rates of evolution [3–5] and experience more variable selection patterns [6,7] compared with older genes. In several yeast species, young genes have fewer physical interactions and are enriched for different functions compared with old genes [8–10]. Young genes are expressed in fewer tissues [11,12] and are regulated by fewer genes [13] in humans.


Sorted in order cited

References

- 1 Kaessmann, H. (2010) Origins, evolution, and phenotypic new genes. *Genome Res.* 20, 1313–1326
- 2 Domazet-Loso, T. and Tautz, D. (2010) A phylogenetic transcriptome age index mirrors ontogenetic divergence. *Nature* 468, 815–818
- 3 Alba, M.M. and Castresana, J. (2005) Inverse relationship between evolutionary rate and age of mammalian genes. *Mol. Biol. Evol.* 22, 598–606
- 4 Cai, J.J. et al. (2006) Accelerated evolutionary rate may be associated with the emergence of lineage-specific genes in *Ascomycota*. *J. Mol. Evol.* 63, 1–11
- 5 Wolfe, T.J. et al. (2009) The universal distribution of evolutionary rates and distinct characteristics of eukaryotic genes. *Proc. Natl. Acad. Sci. U.S.A.* 106, 7273–7278
- 6 Cai, J.J. et al. (2010) Broker genes in human disease. *Genetics* 185, 815–825
- 7 Vishnoi, A. et al. (2010) Young proteins experience more selection pressures than old proteins. *Genome Res.* 20, 157–165
- 8 Qin, H. et al. (2003) Evolution of the yeast protein interactome. *Proc. Natl. Acad. Sci. U.S.A.* 100, 12820–12824

Capra et al, *Trends in Genetics*, 2013.





Instructions for Authors: Letters

Trends in Genetics is designed to have a general audience of geneticists to stay abreast of current trends throughout the field background, and be paragraph.

You are writing for a competent in the field and assumptions sp throughout. Use sec

Please note that L provide an 'update' reserved for genuine

When preparing you

Length

Reference lists

How many references? (Max.: 12 refs)

- Unpublished work, PhD theses and URLs/website addresses must be cited in main text, not in reference lists
- Unpublished work: cited in main text in parentheses as: (Q. Cumber-Patch *et al.*, unpublished)
- PhD theses: cited in main text in parentheses: (R. Arthur Goode, PhD thesis, University of Hawaii, 1988)
- URLs/website addresses: cited in main text in parentheses: (see: <http://www.xxx.yyy.zzz>)
- References in main text, boxes and figures are numbered, and listed at the end of the main text
- In tables, references should be cited in numbers, in a separate column, and listed at the end of the main text
- References listed in order of citation, not alphabetically, with one reference per number
- For journal references: please give authors' names (if two authors, print both names separated by 'and'; if three or more authors, use *et al.* after first author); date (in parentheses); title (in roman text); abbreviate journal name using *Biological Abstracts*; volume; and complete page range. For example:
 - 1 Gold, B. (2002) Effect of cationic charge localization on DNA structure. *Biopolymers* 65, 173–179
 - 2 Han, Y. and Barillas-Mury, C. (2002) Implications of Time Bomb model of ookinete invasion of midgut cells. *Insect Biochem. Mol. Biol.* 32, 1311
 - 3 Gruber, D.M. *et al.* (1999) Progesterone and neurology. *Gynecol. Endocrinol.* 4, 41–45
 - 4 Jovani, R. Malaria transmission, sex ratio, and erythrocytes with two gametocytes. *Trends Parasitol.* (in press)
- For online journal references: please give authors' names (as above); date (in parentheses); title (in roman text); abbreviate journal name using *Biological Abstracts*; the digital object identifier (DOI) number; and the website of the journal. For example:
 - 5 Jiang, J.C. *et al.* (2000) An intervention resembling caloric restriction prolongs life span and retards aging in yeast. *FASEB J.* DOI: 10.1096/fj.00-2429j (http://www.fasebj.org)
- For book references: please give editors' names; date (in parentheses); title (in italics); and publisher. For

Conclusions:

In their original hypothesis for the role of cis-regulatory changes in human evolution, KING and WILSON (1978) offered no evidence that regulatory changes occurred at a higher rate, or had a larger effect per mutation, in primates relative to other species. In contrast, we have shown here that a disproportionate amount of gene gain and loss has occurred between humans and chimpanzees. Our analyses demonstrate that there has been an acceleration in the rate of gene gain and loss along the primate lineage, especially among the great apes. We have also identified several gene families that have undergone copy-number changes large enough to suggest the influence of natural selection. These results are an illustrative example of the novel insights that only become available with multiple, whole-genome sequences. Summing across all families, we infer the gain of at least 678 genes in the human genome and the loss of 740 genes in the chimpanzee genome since their split 5–6 MYA, these results imply that 6.4% (1418/22,000) of all human genes do not have a one-to-one ortholog in chimpanzee. This genomic revolving door (DEMUTH *et al.* 2006) must certainly account for human adaptations due to both recent gene duplications (e.g., FORTINA *et al.* 2004) and recent gene losses (e.g., OLSON 1999, WANG *et al.* 2006). The accelerated rate of evolution in primates further suggests that duplication and loss of genes has played at least as great a role in primate evolution as the modification of existing genes.

Acknowledgments

We thank R. Gibbs, J. Sikela, E. Eichler, W. A. Vilella, A. Ureta-Vidal, and all the members of the laboratory for making this work possible. We also thank D. Durand, J. Stajich, D. Begun, and two reviewers for their comments.

Hahn, Demuth, Han, *Genetics*, 2007

References

ADKINS, R. M., A. H. WALTON and R. L. HONEYCUTT, 2003 Higher-level systematics of rodents and divergence time estimates based on two congruent nuclear genes. *Mol. Phylogenet. Evol.* 28: 409–420. » CrossRef » Medline

BAILEY, J. A., Z. P. GU, R. A. CLARK, K. REINERT, R. V. SAMONTE *et al.*, 2002 Recent segmental duplications in the human genome. *Science* 297: 1003–1007. » Abstract/FREE Full Text

BAILEY, J. A., G. LIU and E. E. EICHLER, 2003 An Alu transposition model for the origin and expansion of human segmental duplications. *Am. J. Hum. Genet.* 73: 823–834. » CrossRef » Medline

BAILEY, J. A., A. M. YAVOR, H. F. MASSA, B. J. TRASK and E. E. EICHLER, 2001 Segmental duplications: Organization and impact within the current Human Genome

In-text references:
Author (year)...
(Author year)

Sorted alphabetically

Citation formats

Citing in an informal context: Provide enough information to

- Give credit to the source
- Allow the reader to track down the source

An example...

Example:

Acknowledging a source in an abstract

....

Gray and Fitch (*Mol. Biol. Evol.* 1983) coined the term “xenolog”, suggesting it be used to describe “clearly homologous” relationships involving genes of foreign origin. In his landmark review, Fitch (*Trends Genet.* 2000) defined xenology as “the relationship of any two homologous characters whose history, since their common ancestor, involves an interspecies (horizontal) transfer of the genetic material.” Current terminology based on this definition would label all genes related through a transfer event as xenologs, not distinguishing among the different homologous relationships involving transfer that can occur. ...

How to Cite a Website in APA format

Retrieved from
<http://www.easybib.com/reference/guide/apa/website>

Structure:

Last, F. M. (Year, Month Date Published). *Article title*.
 Retrieved from URL

Example:

Satalkar, B. (2010, July 15). *Water aerobics*. Retrieved from
<http://www.buzzle.com>

Cain, K. (2012, June 29). The Negative effects of Facebook on communication. *Social Media Today RSS*. Retrieved from
<http://socialmediatoday.com>

How to Cite a Blog Post in APA format

Retrieved from
<http://www.easybib.com/reference/guide/apa/website>

Structure:

Last, F. M. (Year Month Date Published). Article title [Type of blog post]. Retrieved from URL.

Example:

Schonfeld, E. (2010, May 3). Google throws \$38.8 million to the wind [Web log post]. Retrieved May 4, 2010, from <http://techcrunch.com>

China, The American Press, and the State Department [Web log post]. (2013, January 3). Retrieved from Schonfeld, E. (2010, May 3). Google throws \$38.8 million to the wind [Web log post]. Retrieved May 4, 2010, from <http://techcrunch.com>

Resources

- plagiarism.org
 - Information on citation, paraphrasing, footnotes, etc. (Supported by Turnitin software, which is not free.)
- How to paraphrase:
 - Purdue University's Online Writing lab
 - <https://owl.english.purdue.edu/owl/resource/619/1/>
- Harvard Guide to Using Sources
 - Avoiding plagiarism
 - <http://isites.harvard.edu/icb/icb.do?keyword=k70847&tabgroupid=icb.tabgroup106849>
 - Citing sources
 - <http://isites.harvard.edu/icb/icb.do?keyword=k70847&tabgroupid=icb.tabgroup112025>
- Reference managers
 - citationmachine.net
 - mendeley.com

