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## FOSTERING A CULTURE OF SCIENTIFIC INTEGRITY: LEGALISTIC VS. SCIENTIFIC VIRTUE-BASED APPROACHES

By **Robert T. Pennock**

*Robert T. Pennock is Professor of History and Philosophy of Science at Michigan State University, and a Visiting Scholar at the American Association for the Advancement of Science through the end of June.*

The research ethics community has come to a consensus that promoting responsible conduct of research (RCR) cannot be done on a piecemeal basis, but will require the cultivation of an ethical scientific culture (e.g., Gunsalus 1993, Atlas 2009). One highly-cited paper puts it this way: “[A]ll explanations [of research misconduct] seem to share a common denominator—the failure to foster a culture of integrity” (Titus et. al. 2008, 981-982). Focusing on culture is critical, but ethics and culture interact in complex ways, so fostering an ethical culture is not always straightforward. Science, as C. P. Snow emphasized (1959), has its own distinctive culture and thus its own ways of expressing integrity. Unfortunately, RCR is often framed in ways that are insensitive to how ethical norms are embodied and transmitted culturally in general, let alone in scientific culture.

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ADVANCING SCIENCE. SERVING SOCIETY

Whereas deeply rooted cultural norms organically structure a society or a practice from within, RCR literature and training too often theorize and present research ethics in terms of quasi-legalistic external control. I suggest an alternative that is explicitly centered instead on internal norms, specifically on scientific character virtues that embody both epistemic and ethical values. Citi The [Scientific Virtues Project](#) has been developing theory and curricula along these lines, running courses, and holding RCR training workshops based on this approach. Recently, it has been conducting a national survey of scientists to better understand the place of these values in scientific culture. We shall have a better chance of fostering a culture of integrity if we broaden and reframe research ethics and science education in light of this perspective. Although there is not space here to lay out this scientific virtue-based approach in detail, it may be illustrated by way of contrast to the legalistic approach.

The paper quoted above that calls for fostering a culture of integrity will serve as a representative example of the latter. It summarizes the issues in this way:

No regulatory office can hope to catch all research misconduct and we think that the primary deterrent must be at the institutional level. Institutions must establish the culture that promotes the safeguards for whistleblowers and establishes zero tolerance both for those who commit misconduct and for those who turn a blind eye to it. (Titus et. al. 2008, 980)

Such sentences bristle with regulatory and legal terminology. The paper’s recommendations for fostering an ethical culture in research are put in the same external, legalistic terms: institute “zero tolerance,” whistleblower protections, a clear reporting system, mentor training

(specifically so mentors are “more aware of their roles in establishing and maintaining research rules and minimizing opportunities to commit research misconduct”), and alternative oversight mechanisms beyond formal complaints (e.g., institutional auditing of research records). Even the final recommendation to model ethical behavior is formulated in like manner and focuses mostly on “policies,” “procedures,” and “deterrents” (Titus et. al. 2008, 982). This is not the development of an ethical culture but of an enforcement culture.

Inherent in its name, RCR focuses on behavior—how should scientists *conduct* their work. Conduct in the RCR literature is typically couched in terms of rule following and rule breaking. Laws are not the only kind of rules, of course, but because the field arose in response to egregious behavior (Steneck, 1994, Steneck & Bulgar 2007), it is not surprising that RCR rules were originally theorized and are still largely framed in legalistic terms. Putting it bluntly, RCR as currently taught is not so much focused on conduct as *misconduct*.

A legal framework may be necessary as a way for institutions to deal with misconduct, but this is not the most effective way to foster a culture of integrity. It is not that rules of conduct are problematic in and of themselves, but in understanding cultural dynamics, one must take into account that rules seen as imposed from without are viewed very differently than those that are part of a culture.

This is one reason why scientists sometimes see RCR regulations as interfering with science rather than furthering its aims. Furthermore, a legalistic approach that focuses on misconduct misses an important feature of culture, in that it goes beyond behaviors to include attitudes. Culture is essentially normative, involving all sorts

of values and ideals, including ideals of character. Put another way, culture involves not only what kind of behaviors I should or shouldn't do, but also what kind of person I should or shouldn't be. Thinking in terms of scientific virtues allows one to analyze and promote such values in the culture of science.

By better understanding the character traits that make for an exemplary scientist one can acquire a better understanding of the actions that follow. This is directly related to the notion of *research* itself. When one speaks of responsible conduct of research, the tacit assumption is that we are dealing with *scientific* research, which is characterized by its distinctive aims and methods. A scientific virtue-based approach begins here. Aristotle explained how virtues arise in relation to the *telos* or *ends* of a practice: they are those settled dispositions that are conducive to the achievement of excellence in that practice. The central aim of scientific practice is the discovery of empirical truths about the natural world, and the methods of science reflect its basic epistemic values, such as testability and repeatability. Scientific virtues are thus those character traits—curiosity and honesty being the most central, together with related virtues of attentiveness, objectivity, skepticism, meticulousness, and some others—that a scientist should try to embody for science to flourish (Pennock 2006).

**EDITOR:** Mark S. Frankel  
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The final key term in RCR is *responsible*. Typically this is thought of in this context as a synonym for *ethical* conduct of research, but it is worth considering what is implied specifically by the notion of responsibility. The primary question one asks in this regard is “responsible *for what*”? Appropriate answers to this question involve enumeration of one’s duties.

As previously noted, duty in science is not limited to compliance with laws and rules. But a second question when one speaks of responsibility is *to whom* or *to what* is one responsible? This is a more fundamental question, as duties are derivative of it. I argue that the basic responsibility of the scientist is to science itself, in part because science is based on evidence rather than authority. The scientist is not responsible to a scientific leader or any particular person but rather is responsible first to the values that structure science as a practice and then to humanity as a whole, as all practices themselves ultimately aim at human flourishing.

What this means is that scientific integrity is more than research integrity. Integrity involves the notion of a unified wholeness of parts that function together by virtue of the strength of its supporting structure. Scientists are researchers at base but they are not only that. They are also colleagues and mentors. They interact with other actors in other professions and other walks of life. They are citizens and human beings. Thus we need to broaden the scope of research ethics in this way, for there is more to science than just the conduct of research.

As a way to speak about this, my own tendency is to retain the traditional sense of RCR with its focus on research integrity and think of that as one core part of a broader category of *science ethics*, which should be seen as also encompassing the scientific virtues and other topics that may be linked to but are not directly a part of basic research. But one does not need to legislate terminology; research ethics is already a rather broad term.

As Pimple points out, it may even be said to be an “incoherent” field, with subject matter that encompasses “ageless moral

truths and recent arbitrary conventions; minute details of particular actions and the broad sweep of public policy; life-and-death issues and matters just the other side of simple etiquette” (Pimple 2002, 198). Whether we adopt a new term or further expand the scope of the old one, my point is just that we need a broader notion that incorporates this wider perspective and that explicitly includes the character of the scientist.

One advantage of the scientific virtue approach is that it provides a way to systematize some of these disparate aspects of the subject matter. A scientific virtue approach can be helpful in analyzing traditional issues in RCR such as just authorship attribution (Pennock 1996), socially controversial subjects such as human cloning (Pennock 2001), responsible research funding and conflict of interest (Pennock 2002), and general issues such as the responsibility to defend the integrity of scientific methods (Pennock 2006).

It also helps highlight other professional responsibilities that deserve greater attention, including peer-review, dissemination, professional development, mentoring, and education. It helps make sense of interests and conflicts of interest. It can even help put issues of scientists’ social responsibility (which also goes beyond the traditional legalistic framework) in a new light, as such issues involve relationships between scientific and broader human values. These and other aspects of the scientific virtue approach deserve further attention, but here my purpose was just to highlight its general utility for developing a culture of integrity.

The scientific virtue approach does not reject the importance of rules or even of law as a means of supplementing self-regulation. Again, the problem is not with rules and laws per se, but rather with whether they are imposed from without or whether they arise as an expression of intrinsic values from within the culture. The Scientific Virtues Project is making the case that science has an inherent moral structure and that the scientific virtues are a promising organizing principle for reconceiving and expanding science education and RCR. To foster a

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culture of scientific integrity, taking the values already inherent in scientific culture seriously is a good place to begin.

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## In the News

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### Chinese Paper on Embryo Engineering Sparks International Debate

Scientists, policymakers and the general public have long contested the ethics of genetically modifying human embryos, but a recent study in which Chinese researchers used a new method to alter the genes of embryos has reignited the debate.

In a paper published on April 18, 2015 in the open-access journal *Protein & Cell*, Junjiu Huang and other researchers at Sun Yat-sen University in Guangzhou describe their attempt to use CRISPR/Cas-9 technology to modify genes in human embryos that cause beta thalassemia, a disease that affects 100,000 people worldwide [1, 2]. The researchers used nonviable tripronuclear (3PN) zygotes "because ethical concerns preclude studies of gene editing in normal embryos" [1]. 48 hours after conducting the experiment, only 4 of the 54 modified embryos contained the intended genetic changes. Additionally, the 4 embryos were mosaic, meaning only some of the cells in each contained the desired modifications. There were also a significant number of "off-target" effects or unintended mutations in other genes.

According to Huang, the principal investigator, their research was rejected by *Science* and *Nature* on ethical grounds, but both journals have not confirmed whether they received the paper [2]. However, the researchers write that their study was reviewed by their university's ethics board and complied with international standards [1]. One critic pointed out that as *Protein & Cell* accepted the paper two days after it was submitted, it most likely was not peer-reviewed [3]. The journal countered the claim, stating that the paper was peer-reviewed on an expedited schedule [4].

The scientific community—including the Chinese researchers—is relatively united in their disapproval of clinical applications of embryo manipulation, but divided on the value of basic research on the method using non-viable embryos [3]. As expressed by ethicists and in the media with movies such as *Gattaca*, many are concerned about the concept of "designer babies" and the use of genetic engineering to enhance human capabilities beyond normal, which could exacerbate societal inequities and hold other unanticipated consequences.

After rumors about the study circulated a month before its publication, David Baltimore, president emeritus of the California Institute of Technology and 17 co-authors argued in *Science* that embryonic genetic manipulation should not be conducted until the "...societal, environmental, and ethical implications of such activity are discussed among scientific and governmental organizations" [5]. Other scientists are concerned that the alteration of human embryos would provoke unreasonable criticism of less controversial forms of genetic engineering, which hold promise for fighting cancer and other diseases: "Legitimate concerns regarding the safety and ethical impacts of germline editing must not impede the significant progress being made in the clinical development of approaches to potentially cure serious debilitating diseases" [6]. Jennifer Doudna, a molecular biologist at the University of California, Berkeley, said the Huang experiment was unnecessary because the CRISPR technology is not yet accurate enough for application in humans; it should first be perfected in other systems [3].

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In contrast, George Daley, a stem cell biologist at Harvard Medical School, defended the value of basic research into embryonic gene editing, pointing out the benefits of exploring potential risks before clinical applications [3]. Daley added that the researchers complied with international guidelines allowing researchers to experiment with embryonic cells that have not grown for more than 14 days. “[T]o inform any debate on whether this technology could be useful for eradicating disease, one has to understand the range of efficacy and off-target mutagenesis” [3].

In response to the study and the resulting media storm, NIH Director Dr. Francis Collins released a statement reiterating NIH’s stance to not fund research modifying human embryos and noting a Congressional prohibition on funding research that puts human embryos at risk [7]. Furthermore, NIH will not conduct embryonic genetic engineering because of “serious and unquantifiable safety issues, ethical issues presented by altering the germline in a way that affects the next generation without their consent, and a current lack of compelling medical applications justifying the use of CRISPR/Cas9 in embryos” [7]. On May 18, 2015, the National Academy of Sciences and National Academy of Medicine announced a plan to hold a summit and develop guidelines on the genetic modification of embryos [8].

- [1]<http://link.springer.com/article/10.1007%2Fs13238-015-0153-5#page-1>
- [2]<http://ghr.nlm.nih.gov/condition/beta-thalassemia>
- [3]<http://news.sciencemag.org/asiapacific/2015/04/chinese-paper-embryo-engineering-splits-scientific-community>
- [4]<http://news.sciencemag.org/asiapacific/2015/04/journal-responds-controversy-over-embryo-gene-editing-paper>
- [5]<http://www.sciencemag.org/content/348/6230/36.full>
- [6]<http://www.nature.com/news/don-t-edit-the-human-germ-line-1.17111>
- [7][http://www.nih.gov/about/director/04292015\\_statement\\_gene\\_editing\\_technologies.htm](http://www.nih.gov/about/director/04292015_statement_gene_editing_technologies.htm)
- [8]<http://www.nature.com/news/us-science-academies-take-on-human-genome-editing-1.17581>

Josh Ettinger

## Director of NIH Issues Statement on Funding for Genomic Editing Technologies

Francis S. Collins, Director of the National Institutes of Health (NIH), recently released a statement declaring the organization’s opposition towards funding for the use of gene-editing technologies in human embryos.

The statement referred to newly publicized work on gene-editing technology (see previous story). Citing issues in safety, ethics, and lack of potential uses of this work, Collins noted that the “alteration of the human germline in embryos for clinical purposes,” though technologically possible, remains a highly contested issue and “has been viewed almost universally as a line that should not be crossed” [1]. It is highly improbable that such research would be allowed in the current legal conditions.

However, the statement also describes the potential uses of and ongoing research in genomic editing and technology funded by the NIH. Projects include the faster development of knockout mouse models of particular diseases, the construction of HIV-1 resistance in human immune cells, and the creation of antimicrobials that defend against dangerous bacteria and viruses.

Above all, Collins emphasized, “well-established scientific and ethical principles” should serve as the foundation for biomedical research and innovation and as a guide for NIH support [1].

- [1][http://www.nih.gov/about/director/04292015\\_statement\\_gene\\_editing\\_technologies.htm](http://www.nih.gov/about/director/04292015_statement_gene_editing_technologies.htm)

Priyanka Patel

## European Commission Responds to European Citizens’ Initiative “Stop Vivisection”

The European Commission (EC) has recently issued a response to the European Citizens’ Initiative (ECI) “Stop Vivisection.” The ECI was created in April of 2012 to promote participatory democracy. It does this by enabling one million European Union (EU) citizens

from at least seven EU countries to petition the European Commission to propose legislation on topics where the EU has the authority to legislate. “Stop Vivisection” is an initiative that seeks to reform how biomedical and toxicological research are currently being conducted. Vivisection, the practice of experimenting on live animals for scientific research, has been a topic of discussion long debated in the scientific community. The Initiative is the third of only three ECIs to pass the one million signature threshold to date. With over 1,170,000 citizen signatures collected, the ECI is hoping to replace animal testing with more precise, consistent human-relevant techniques.

The Initiative urges that the European Union’s [Directive 2010/63/EU](#) be rescinded. The directive seeks to improve and protect the welfare of animals required for scientific experimentation by the European Commission. Specifically, the directive outlines the legislation of the “Three R’s”: the requirement to replace, reduce, and refine the role of animals in scientific testing when possible. Proponents hope the abrogation of the directive will change the field of biomedical research for the benefit of animal welfare, the environment, and human kind. The ECI proposes to abolish animal experimentation, and advocates for compulsory use of data directly relevant for human species. The proposal is based on documents that correlate a dramatic rise in many types of illness to the action of chemicals and the inability of the EU to pursue them with the adequate scientific methods of research. In sum, the Initiative stipulates that toxicity testing in animals is more harmful than useful and outlines ten requests directed to the EC in order to phase out animal testing in Europe.

In [response](#), the Commission dismissed the requests and legislative changes proposed by “Stop Vivisection.” The EC stated that it shares the same ultimate goal that animal testing should be eliminated, but its approach will differ from that outlined by the ECI. The EC presently will not issue a ban on animal research as a whole, for fear that it would move biomedical research from Europe to other countries. Although there have

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been some developments in creating alternative methods that reduce the need for animal testing, certain processes of toxicology and physiology cannot be replaced by such alternatives. Thus, according to the Commission, animal testing is still vital for the protection of human health, animal health, and the environment.

The EC will not repeal directive 2010/63/EU that protects the animals still required for experimentation. Instead, the Commission plans to reduce animal testing by using the directive in order to achieve the fundamental objectives of “Stop Vivisection.” The EC supports the “Three R’s,” while acknowledging the need to accelerate this requirement and continue to fund research to develop alternate approaches to animal testing.

The EC has indicated that it welcomes the participation of citizens in support of animal welfare. The Commission urges the scientific community and the Member States to take into account the requests of “Stop Vivisection” and to participate actively in developing new approaches. The EC will organize a conference by the end of 2016 with the scientific community and relevant stakeholders on phasing out animal testing, where a report will be presented detailing the progress the Commission has made to increase animal welfare and reduce experimentation with animals.

For more information:

[The European Citizens’ Initiative “Stop Vivisection”](#)  
[European Citizens’ Initiative](#)

*Carson Martinez*

## **EPA Opens Draft Action Agenda for Environmental Justice for Public Input**

The Environmental Protection Agency (EPA) recently revealed its Draft EJ 2020 Action Agenda [1] and plan to “advance environmental justice” over the next five years [2]. The draft is now open for comments from interested individuals and organizations.

The EJ 2020 Action agenda hopes to engage local and state governments, the public, and stakeholders in its goal to better serve communities through

initiatives for environmental justice, with the following goals:

- “Deepening environmental justice progress in EPA’s programs to improve the health and environment of overburdened communities
- Collaborating with partners to expand our impact in overburdened communities
- Demonstrating progress on outcomes that matter to overburdened communities” [2]

These plans include improving regulations to support environmental justice, especially in modes of compliance and enforcement, and creating open channels for public communication and concerns. EPA also plans to collaborate with communities, tribal organizations, local governments, and state agency partners in maintaining community-based projects in health and sustainability. Through the Community Resources Network, EPA hopes to support local efforts in multi-stakeholder engagement and public participation in environmental justice [1].

EPA will demonstrate the progress of these actions through public reports on project development, and allow communities to submit ideas on projects that require attention. Efforts will also be made for community development in climate adaptation and resilience, in addition to greenhouse gas reduction. These initiatives will provide EPA with the opportunity to make a “visible difference in overburdened communities” [1].

Though the plan highlights future tasks and goals, EPA has also committed to sustained efforts for its current projects [2]. These include conversations with numerous stakeholders, including the Interagency Working Group on Environmental Justice, and drafting improved regulations [2].

The draft will be open and available for comment from April 15, 2015 to June 15, 2015 [2]. Written responses should be sent to [ejstrategy@epa.gov](mailto:ejstrategy@epa.gov). EPA also asks that interested parties contact Charles Lee ([lee.charles@epa.gov](mailto:lee.charles@epa.gov)), Deputy Associate Assistant Administrator for Environmental Justice,

to obtain further information on these goals or to contribute to dialogue sessions with EPA.

[1]<http://www.epa.gov/environmentaljustice/resources/policy/ej2020/draft-framework.pdf>

[2]<http://www.epa.gov/environmentaljustice/ej2020/>

*Priyanka Patel*

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## **In the Societies**

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### **AAAS Releases Statement on Scientific Transparency and Responsibility**

On March 31, 2015, AAAS issued a statement on Scientific Transparency, Disclosure, and Responsibility. The CEO of AAAS, Rush Holt, commented on the necessity of scientific integrity and the commitment of AAAS to ensuring high standards of research responsibility and publication transparency.

The statement was released in response to several recent incidents in the scientific community concerning scientific transparency, especially the responsibility to disclose conflicts of interest. A researcher at the Harvard-Smithsonian Center for Astrophysics testified in Congress on the anthropogenic impact on global climate change, but did not address any financial interests that may have affected his statement. Additionally, further questions were raised about a Member of Congress’ extensive demands for all climate change-related statements and communications of scientists from seven universities.

Holt emphasized the dedication of AAAS and its journals to the disclosure of conflicts of interests as part of its commitment to scientific responsibility and transparency. These requirements have been set for the *Science* family of journals, as well as numerous scientific journals worldwide. Scientists associated with AAAS and its activities are also subject to similar requirements for transparency.

However, Holt noted, inquires that “go

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beyond the appropriate levels of oversight” can be detrimental to the research process and place researchers at risk [1].

Efforts to encroach upon scientific findings and evidence-based intellectual discussions inhibit scholarly development and the scientific process. Furthermore, several incidents have occurred, in a wide variety of fields, in which scientists’ personal information was used in attempts to question their work and professional integrity.

“Balance between scientific freedom and accountability” is crucial for transparency and the progress of science. Above all, the “responsible conduct and use of science” must be the foundation for all scientific research and its dissemination [1].

[1] <http://www.aaas.org/sites/default/files/AAAS%20Statement%20on%20Scientific%20Transparency,%20Disclosure,%20and%20Responsibility.pdf>

*Priyanka Patel*

## National Academy of Sciences Issues Statement on Responsible Disclosure

Ralph J. Cicerone, president of the National Academy of Sciences (NAS), released a statement on Scientists and Responsible Disclosure on March 6, 2015, noting that science, in its application to economic and societal concerns, can prove to be especially controversial.

Like CEO Rush Holt in the AAAS Statement, Cicerone describes several incidents in which the disclosure of financial interests and monetary support for research studies was brought into question. In these cases, policymakers demanded a greater examination of the methods and results of scientific research on climate change, as well as the potential objectives of scientists who performed the work.

Cicerone stressed that scientists should disclose all financial interests and sources of support to maintain scientific transparency and ensure professional responsibility. This is already required of

authors submitting papers to numerous journals, including the journal Proceedings of the National Academy of Science (PNAS). Furthermore, he notes, the costs of non-disclosure can become greater for authors and institutions as requests expand to include all documentation, from e-mails to research paper drafts.

The University of Virginia was recently forced to respond to such demands – the university disclosed information pertaining to “meaningful requests” [1], but did not release all of the unpublished research data and paper drafts. NAS collaborated on an amicus brief in support of the University of Virginia’s case and its choice for responsible disclosure of scientific methods and data.

Responsible scientific debate is necessary to have progress in science and combat “further escalation of divisive political actions.” [1] Research institutions, journals, and scientists must work together to protect scientific integrity by ensuring the full disclosure of relevant information to the public.

[1] <http://www.nasonline.org/about-nas/leadership/president/responsible-disclosure.html>

*Priyanka Patel*

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## Resources

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### CITI Program’s Responsible Conduct of Research Book Released

The Collaborative Institutional Training Initiative (CITI) Program at the University of Miami (<https://www.citiprogram.org/>) has recently published RCR for Engineering: An Introduction to Ethics and Engineering Research, which presents a collection of ten chapters providing insight into responsible conduct of research (RCR).

Edited by Jason Borenstein with Daniel Smith, RCR for Engineering comprises many essential topics in the field of engineering research: authorship, peer review and publication, mentoring, data

management, conflicts of interest, research involving human subjects, using laboratory animals, research misconduct, whistleblowing and the obligation to protect the public, and environment and social considerations.

The book provides a comprehensive account of the intersection of research, ethics, and legal compliance within the field of engineering and is based on the CITI Program’s RCR for engineering online course, which was initiated in 2008 and recently was retired in 2014. The CITI Program’s publication of the RCR for Engineering: An Introduction to Ethics and Engineering Research affords a portable and comprehensive resource of RCR education.

The book is part of the CITI program’s series of publications explicating core norms, standards, rules, and regulations governing the practice of research. These publications are based on the CITI Program’s online training. In addition to RCR online training, the offers courses in Animal Care and Use (ACU), Biosafety and Biosecurity (BSS), Clinical Research Coordinator (CRC), Conflicts of Interest (COI), Disaster Planning for the Research Enterprise (DPRE), Export Control (EC), Good Clinical Practice (GCP), Human Subjects Research (HSR), and Information Privacy and Security (IPS).

To purchase RCR for Engineering: An Introduction to Ethics and Engineering Research, visit: <http://citiprogrampublications.org/>.

*Carson Martinez*

### New Education Materials from the Bioethics Commission on Research Design

The Presidential Commission for the Study of Bioethical Issues has published several educational modules on ethical research design. The modules accompany the Commission’s Gray Matters: Integrative Approaches for Neuroscience, Ethics, and Society report. Find the modules here:

<http://blog.bioethics.gov/2015/05/12/new-education-materials-from-the-bioethics-commission-on-research-design-now-available/>

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# Announcements

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## UNESCO Chair in Bioethics 11<sup>th</sup> World Conference

Bioethics, Medical Ethics and Health Law

October 20-22, 2015

Naples, Italy

More information: [www.bioethics-conferences.com](http://www.bioethics-conferences.com)

### CALL FOR PAPERS

#### Cyberethics: Ethical And Legal Issues On The Internet

Questions of appropriate online behavior, surveillance, regulation, and governance have grown in importance. Indeed, cyberethics has emerged as a distinct area of inquiry. The *Journal of Philosophy, Science & Law* invites new manuscripts in this rapidly evolving domain. Topics suitable for this Call for Papers include but are not limited to ethical and legal issues emerging from: censorship on the internet; cyberharassment; cybersecurity; the digital divide; domain name disputes; intellectual property and the internet; online anonymity; online privacy; social networking and human subjects research; and online surveillance/tracking.

Manuscripts submitted for inclusion in this special issue must be original work and not be under consideration with any other journal. Authors should adhere as closely as possible to the Journal's publication guidelines:

<http://jpsl.org/submission-information/>.

Authors should submit their manuscripts and abstracts via email attachments no later than September 1, 2015 to Dr. Jason Borenstein: [borenstein@gatech.edu](mailto:borenstein@gatech.edu) and the email subject line should read JPSL Cyberethics. Accepted manuscripts will be published online in Spring 2016.

### CALL FOR SUBMISSIONS

The National Academy of Engineering [Center for Engineering, Ethics, and Society \(CEES\)](#) invites submissions of ethics activities that prepare students for ethical practices, research, or leadership in engineering. Eligible activities may be at the bachelor's or master's level for engineering or engineering technology students; should aim to prepare students for ethical practice, research, or leadership in engineering; and should

have at least one clearly articulated attribute that makes them exemplary. The strongest candidates will teach ethics in an engineering context and include methods for assessing whether the educational goals of the activity are being met.

Each selected activity will be recognized as an NAE Exemplar in Engineering Ethics Education in a letter from the NAE president to both the educator(s) and the dean of engineering at the host or partner institution.

A specially appointed NAE committee will select the exemplary activities, which together will demonstrate the breadth of effective engineering ethics activities and serve as a resource for those who want to improve ethics education at their own institutions. Submissions are due September 18, 2015, by 12 noon EDT. The [Submission Form](#) and further information about the project are available at [www.nae.edu/InfusingEthics.aspx](http://www.nae.edu/InfusingEthics.aspx). If you have questions, please consult the [Frequently Asked Questions](#) or email Frazier Benya ([fbenya@nae.edu](mailto:fbenya@nae.edu)).

### Ethics Teacher Training Course Johannesburg, South Africa (31 August - 4 September 2015)

The [Ethics Teacher Training Course \(ETTC\)](#) is designed to advance pedagogical capacity for ethics teaching and improve the quality of ethics education around the world.

This Ethics Teacher Training Course in Johannesburg, South Africa is a collaborative effort involving UNESCO and the Steve Biko Centre for Bioethics at University of the Witwatersrand. The Course offers a unique opportunity for participants from South Africa and from other countries in the region to enhance their teaching capacities in ethics. Ethics Teacher Training Course is conducted by a team of international experts with extensive experience in ethics education. A successful candidate for the Course will have a Master's or higher degree (in areas such as law, medicine, philosophy, ethics, or social sciences), experience or future plans of teaching ethics, and a good command of English language.

To register, submit a [registration form](#) to the Secretariat at Bioethics Section of UNESCO ([etc.wits@unesco.org](mailto:etc.wits@unesco.org)) as early as possible, and before the 15 July 2015 deadline. This form is also available on the [UNESCO web site](#). Applicants should also include a letter of intent (600 words, in English) explaining why they wish to participate in the course and how they expect to benefit from it.

While the participation in the course is free, the participants are expected to cover their travel, meals and accommodation at the designated hotel by the organizer. For more information: please contact Mr. Abdul Rahman Lamin at UNESCO Regional Office for Eastern Africa in Nairobi, Kenya ([ar.lamin@unesco.org](mailto:ar.lamin@unesco.org)) or visit the website at <http://www.unesco.org/bioethics>. Deadline for registration is 15 July 2015.

### Research Integrity Conference

Vanderbilt University Medical Center's Office of Research and Center for Biomedical Ethics and Society are convening the Growing Research Integrity Together (GRIT) Conference at Vanderbilt (Nashville, Tennessee) on July 7-9, 2015. The GRIT Conference is open to anyone interested in learning more about forging partnerships to build research integrity, including faculty, administrators, students, postdocs and other research staff. Individuals and teams from other universities are welcome.

Attendees are also invited to participate in a six-month study that will look at the effectiveness of post-conference interventions. Teams could benefit from coaching, webinars, conference call discussion groups, case studies, videos and more. The conference will include three days of active, workshop-style learning and presentations from local and national experts, all centered on the topic of building bridges between faculty, administrators, and research staff (both lab and clinic) in supporting research integrity. Register [here](#) by credit card or, for other payment options, please contact Sam Gannon EdD, at [sam.gannon@Vanderbilt.Edu](mailto:sam.gannon@Vanderbilt.Edu) or (615)-322-3359. More information and the preliminary schedule are available at <https://grit2015.squarespace.com>.