



# Managing Research and Research Groups

[Making the Right Moves: Key Issues for Post-doctoral Professionals & New Faculty](#)

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Workshop Series – March 01, 2007

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## Research & Graduate Studies

Office of the Vice President for Research

<http://www.msu.edu/unit/vprgs/>

The Graduate School

<http://grad.msu.edu/>

<http://grad.msu.edu/all/respconduct.htm>

<http://www.msu.edu/~biomed/epi827/>

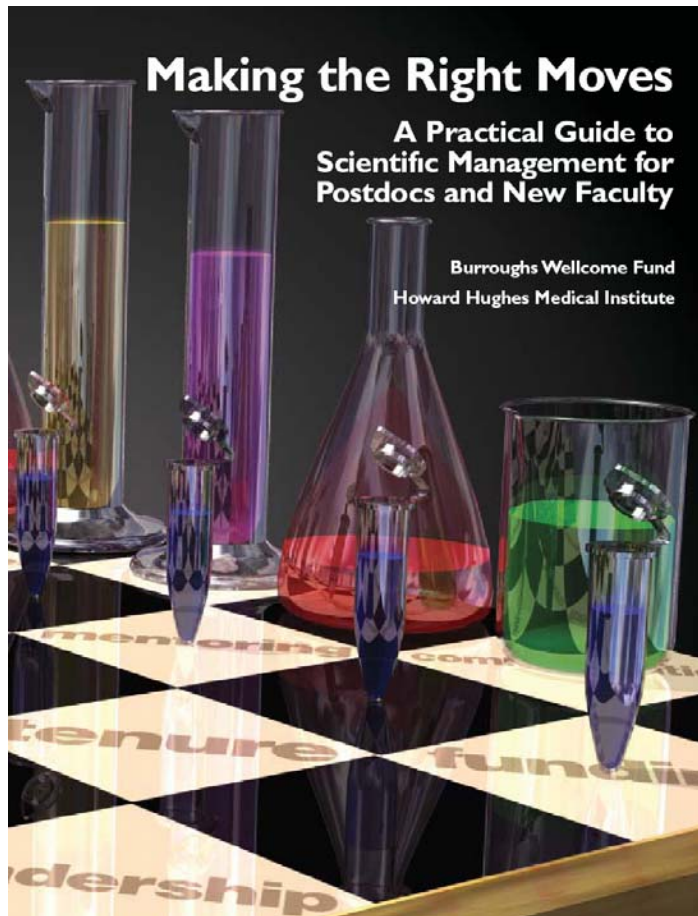
## In Cooperation with

the Office of Faculty & Organizational Development

<http://www1.provost.msu.edu/facdev/>

Laura Bonetta, Editor. 2004. **Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty.** The Burroughs Wellcome Fund & the Howard Hughes Medical Institute. 233 pp.

<http://www.hhmi.org/labmanagement>



**Chapter 1** — Obtaining and Negotiating a Faculty Position and Planning for Tenure

**Chapter 2** — The Scientific Investigator Within the University Structure

**Chapter 3** — Defining and Implementing Your Mission

**Chapter 4** — **Staffing Your Laboratory**

**Chapter 5** — **Mentoring and Being Mentored**

**Chapter 6** — Time Management

**Chapter 7** — **Project Management**

**Chapter 8** — **Data Management and Laboratory Notebooks**

**Chapter 9** — Getting Funded

**Chapter 10** — Getting Published and Increasing Your Visibility

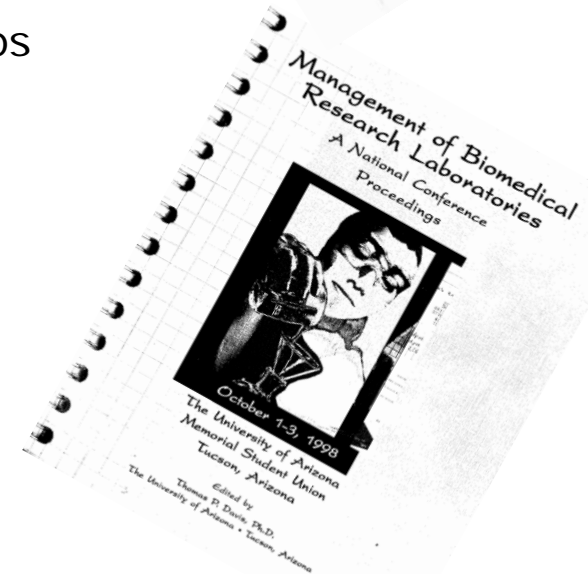
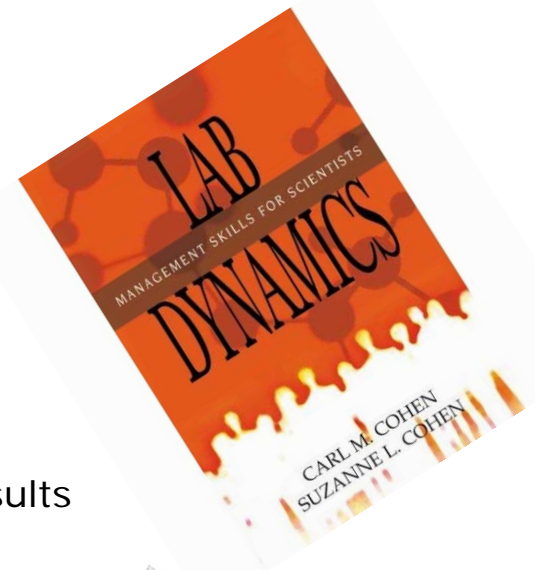
**Chapter 11** — Understanding Technology Transfer

**Chapter 12** — Setting Up Collaborations

**Chapter 13** — Course in **Scientific Management**: An Overview and Lessons Learned

# Topics for Consideration

- ☞ Managing Research
  - ✓ The Laboratory Director
    - ◆ The Regulatory Environment for Research "Housekeeping"
    - ◆ Sharing of Research Resources and Research Results
- ☞ Managing Research Groups
  - ✓ Ingredients of Successful Research Groups
    - ◆ Authority, Responsibility, Skills
  - ✓ Mentoring
    - ◆ Responsibilities, Effectiveness, Conflicts
  - ✓ Setting Priorities
    - ◆ Strategy, Change, Competing Interests
  - ✓ Quality Control
    - ◆ Experiments, Analysis, Reporting
  - ✓ Managing Data
    - ◆ Recording, Retention, Access, Ownership
  - ✓ Assigning Credit for Productivity
    - ◆ Authorship, etc.



# The Laboratory Director

- ☞ To maintain a stable base of diversified funding for contemporary research
- ☞ Must clearly articulate the group's scientific goals & the relevance of those goals to local and national priorities
- ☞ Must spend a lot of time on "housekeeping"

# The Laboratory Director

- ☞ Change in Business Process – Wednesday, May 10, 2006
  - ✓ NIH NOT-OD-06-054
    - ◆ The signature of the PI is no longer required as a part of a submitted application. Instead, the institution must agree to secure and retain a written assurance from the PI prior to submitting an application to the PHS.
    - ◆ Such an assurance must include at least the following certifications: (1) that the information submitted within the application is true, complete and accurate to the best of the PI's knowledge; (2) that any false, fictitious, or fraudulent statements or claims may subject the PI to criminal, civil, or administrative penalties; and (3) that the PI agrees to accept responsibility for the scientific conduct of the project and to provide the required progress reports if a grant is awarded as a result of the application. When multiple PIs are proposed in an application, this assurance must be retained for all named PIs.

# The Laboratory Director – “Housekeeping”

## ☞ The Regulatory Environment

### ✓ Adapted from:

- ◆ Norris, Julie T., Sinisgalli, Allen J., and Jane A. Youngers. 1991. *Regulation and Compliance: A Compendium of Regulations and Certifications Applicable to Sponsored Programs*. National Council of University Research Administrators, Washington, D.C.

# The Regulatory Environment

- Basic Framework
- Specific Administrative Requirements
- Employee Directives
- Individual Rights / Anti-Discrimination / Privacy
- Protection Issues
- Fraud, Waste & Abuse

# Basic Regulatory Framework

- ☞ OMB Circular A-110, **UNIFORM ADMINISTRATIVE REQUIREMENTS FOR GRANTS & AGREEMENTS WITH INSTITUTIONS OF HIGHER EDUCATION, HOSPITALS, & OTHER NON-PROFIT ORGANIZATIONS**
- ☞ OMB Circular A-21, **COST PRINCIPLES FOR EDUCATIONAL INSTITUTIONS**
- ☞ Bayh-Dole Act, 1980; OMB Circular A-124, **RIGHTS TO INVENTIONS MADE BY NONPROFIT ORGANIZATIONS & SMALL BUSINESS FIRMS**
- ☞ Executive Order 12372, **COORDINATED REVIEW PROCESS**
- ☞ **FEDERAL ACQUISITION REGULATIONS (FAR)**
- ☞ OMB Circular A-133, **AUDITS OF STATES, LOCAL GOVERNMENTS, & NON-PROFIT ORGANIZATIONS**
- ☞ P.L. 106-107, **FEDERAL FINANCIAL ASSISTANCE MANAGEMENT IMPROVEMENT ACT**
- ☞ P.L. 107-56, **U.S. PATRIOT ACT**
- ☞ **STUDENT & EXCHANGE VISITOR INFORMATION SYSTEM (SEVIS)**
- ☞ P.L. 107-188, **PUBLIC HEALTH SECURITY & BIOTERRORISM PREPAREDNESS & RESPONSE ACT, 2002**

# Specific Administrative Requirements

- ☞ DHHS, **STUDENT UNREST PROVISIONS**
- ☞ **BUY AMERICAN ACT**
- ☞ INTERNATIONAL AIR TRANSPORTATION FAIR COMPETITIVE PRACTICES ACT, **FLY AMERICA**, 1974
- ☞ P.L. 90-629, as amended, **ARMS EXPORT CONTROL ACT**, 1976 (certain technical and scientific data are regulated)
- ☞ P.L. 106-508, **EXPORT ADMINISTRATION ACT**, 1979 (civilian goods and technology that have military applications; dual-use items)
- ☞ **COMPETITION IN CONTRACTING ACT**, 1984
- ☞ OMB Circular A-129, **NON-DELINQUENCY OF FEDERAL DEBT**, 1988
- ☞ **NEA CLAUSE ON OBSCENITY**, 1990

# Employee Directives

- ☞ **DAVIS BACON ACT**, 1931
- ☞ **WALSH-HEALEY PUBLIC CONTRACTS ACT, SERVICE CONTRACT ACT, CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**, 1962
- ☞ P.L. 91-596, **OCCUPATIONAL SAFETY AND HEALTH ACT**, 1970
- ☞ **DRUG-FREE WORK FORCE**, 1988
- ☞ **DRUG-FREE WORKPLACE ACT**, 1988
- ☞ **DRUG-FREE SCHOOLS & CAMPUSES ACT**, 1989
- ☞ **PROHIBITION ON LOBBYING** (with federal funds & disclosure of lobbying paid by institutional funds), 1990

# Individual Rights / Anti-Discrimination / Privacy

- ☞ **SMALL BUSINESS ACT: UTILIZATION OF SMALL & SMALL DISADVANTAGED BUSINESS CONCERNS, 1958**
- ☞ **SMALL BUSINESS ACT: UTILIZATION OF WOMEN-OWNED SMALL BUSINESSES, 1958**
- ☞ **CIVIL RIGHTS ACT, 1964**
- ☞ Executive Order 11246, **EQUAL EMPLOYMENT OPPORTUNITY**
- ☞ **DRUG ABUSE OFFICE & TREATMENT ACT: CONFIDENTIALITY OF PATIENT RECORDS, 1972**
- ☞ **EDUCATION AMENDMENTS: TITLE IX - SEX DISCRIMINATION, 1972**
- ☞ **VIETNAM VETERANS READJUSTMENT ASSISTANCE ACT: AFFIRMATIVE ACTION FOR SPECIAL DISABLED AND VIETNAM ERA VETERANS, 1972**
- ☞ P.L. 93-380, **FAMILY EDUCATIONAL RIGHTS & PRIVACY ACT**
- ☞ P.L. 93-579, **THE PRIVACY ACT, 1974**
- ☞ **AGE DISCRIMINATION ACT, 1975**
- ☞ **UTILIZATION OF LABOR SURPLUS AREA CONCERNS, 1980**
- ☞ **FREEDOM OF INFORMATION ACT, 1990**
- ☞ **AMERICANS WITH DISABILITIES ACT, 1990**
- ☞ P.L. 104-191, **HEALTH INSURANCE PORTABILITY & ACCOUNTABILITY ACT, 1992**

# Protection Issues

- ☞ **MARINE MAMMAL ACT**
- ☞ **ANIMAL WELFARE ACT, 1966**
- ☞ P.L. 91-596; **OCCUPATIONAL SAFETY AND HEALTH ACT: HAZARDOUS MATERIALS & BLOODBORNE PATHOGENS, 1970**
- ☞ **HEALTH RESEARCH EXTENSION ACT: HUMAN SUBJECTS COMPLIANCE, 1985**
- ☞ **RESEARCH INVOLVING RECOMBINANT DNA MOLECULES, 1986**
- ☞ P.L. 101-601, **NATIVE AMERICA GRAVES PROTECTION & REPATRIATION ACT, 1990**
- ☞ P.L. 107-56, **U.S. PATRIOT ACT**
- ☞ P.L. 107-188, **PUBLIC HEALTH SECURITY & BIOTERRORISM PREPAREDNESS & RESPONSE ACT, 2002**
  - ✓ Agricultural Bioterrorism Interim Rule (12/13/02 FR)
  - ✓ Select Agent Program and Regulations (12/13/02 FR )

# Fraud, Waste & Abuse

- ☞ **COVENANT AGAINST CONTINGENT FEES**
- ☞ **OFFICIALS NOT TO BENEFIT**
- ☞ **ANTI-KICKBACK ACT, 1986**
- ☞ **PROGRAM FRAUD – CIVIL REMEDIES ACT, 1986**
- ☞ Executive Order 12549 & FAR 521.209-5, **DEBARMENT AND SUSPENSION**  
(Government-wide suspension and debarment system (list of excluded parties) to prevent poor performance, waste, fraud and abuse in Federal procurement and non-procurement actions)
- ☞ **MISCONDUCT IN SCIENCE, 1987**
- ☞ **PHS OBJECTIVITY IN RESEARCH,**
- ☞ **NSF, INVESTIGATOR FINANCIAL DISCLOSURE POLICY**

## NIH "WELCOME WAGON" LETTER Information for New Grantee Organizations

Updated: April 2004

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Information provided here is primarily for officials of organizations planning to submit a grant or cooperative agreement (hereinafter referred to as grant) application or receiving a grant from the [National Institutes of Health](#) (NIH) for the first time. The intent is to highlight key requirements, provide referrals to important sources of information, and identify NIH, [Public Health Service (PHS)] and [Department of Health and Human Services](#) (HHS) offices that have responsibility for certain administrative functions. Information available through these resources is important to those having responsibility for the administrative and fiscal management of NIH grant awards.

This letter may also be helpful to established grantee organizations because it updates previous issues and cites new and current provisions.

While the "Welcome Wagon" letter (<http://grants.nih.gov/grants/funding/welcomewagon.htm>) highlights or summarizes important issues, it is neither intended to nor does it serve as a substitute for the NIHGPS.

### REQUIREMENTS AND PROVISIONS

#### Terms of Award

Acceptance of a grant award from NIH carries with it the responsibility to be aware of and comply with the terms and conditions of award. The [Notice of Grant Award \(NGA\)](#) states:

This award is based on the application submitted to, and as approved by, the NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- Grant program legislation and program regulation cited in this Notice of Grant Award.
- Restrictions on the expenditure of Federal funds in [appropriation acts](#), to the extent those restrictions are pertinent to the award.
- Code of Federal Regulations/Regulatory Requirements - [45 CFR Part 74](#) or [45 CFR Part 92](#) as applicable.
- The [National Institutes of Health Grants Policy Statement](#) (NIHGPS) in effect at the beginning date of the budget period.

<http://grants.nih.gov/grants/funding/welcomewagon.htm>

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**Appendix 2** - Assurance of Compliance (F.L. 123)

**Appendix 3** - Small Business Declaration Form

**Appendix 4** - Financial Management Systems Questionnaire

**Appendix 5** - Sample Indirect Cost Rate Proposal (Non-Profit Organization)

**Appendix 6** - Sample Indirect Cost Rate Proposal (Profit Organization)

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pnag](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=pnag)

http://www.nsf.gov/pubs/manuals/gpm05\_131/index.jsp

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## Grant Policy Manual

NSF 05-131 July 2005

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[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pnag](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=pnag)

# Ingredients of Successful Research Groups

- ☞ Skills
- ☞ Clear Expectations
  - ✓ Authority
  - ✓ Responsibility
  - ✓ Assigning Credit
  - ✓ Authorship
  - ✓ Data Management
  - ✓ Data Access
- ☞ Manage “Issues” not “the People”

# Before You Begin

<http://www.niaid.nih.gov/ncn/grants/charts/checklists.htm>

- ☞ Do I know the field and its literature well?
- ☞ Do I know what other projects in my field are being funded?
- ☞ Is the field overpopulated with researchers?
- ☞ Did I check the literature to make sure the project I'm considering has not been done before, or has been done and its methods judged inadequate?
- ☞ Did I brainstorm ideas with colleagues and mentors?
- ☞ Did I discuss my proposal with program staff in the appropriate Institute?
- ☞ Did I check to see if my idea matches any NIH initiatives reflecting its high-priority areas?

# Before You Begin

- ☞ Do I know what resources and support my organization has, and what other support I'll need?
- ☞ Did I check with my institution's business office to see what deadlines they have?
- ☞ Am I giving myself plenty of time to write the application, at least three to six months?
- ☞ Have I considered asking a few of my senior colleagues to be on a mock review committee so that I can get ideas along with feedback on the concept, planning, and writing stages of my application?

# Sharing of Research Resources and Research Results

- ☞ MSU Research Data: Management, Control, and Access Guidelines
  - ✓ [http://www.msu.edu/unit/vprgs/research\\_data.htm](http://www.msu.edu/unit/vprgs/research_data.htm)
- ☞ Export Control Regulations
  - ✓ <http://www.msu.edu/unit/vprgs/expregs/overview.htm>
- ☞ Council on Governmental Relations. 1996. Policy Considerations: Access to and Retention of Research Data
  - ✓ <http://www.cogr.edu/docs/RetentionData.pdf>
- ☞ Council on Governmental Relations. 1996. Rights in Technical Data and Computer Software: A Faculty Guide
  - ✓ <http://www.cogr.edu/docs/RightsComputer.htm>

# NIH Information / Resource Sharing

☞ <http://grants.nih.gov/grants/policy/policy.htm#guidance>

- ✓ Model Organisms for Biomedical Research
- ✓ NIH Data Sharing Policy
  - ◆ ... goes into effect beginning October 1, 2003, for applicants seeking NIH funding of \$500,000 or more in direct costs in any one year. The policy expects final research data, especially unique data, from NIH-supported research efforts to be made available to other investigators.
- ✓ NIH Model Organisms Sharing Policy
- ✓ NIH Principles and Guidelines for Sharing of Biomedical Research Resources

☞ <http://grants1.nih.gov/grants/policy/coc/index.htm>

- ✓ NIH Public Access Policy Page NIH Statement on Certificates of Confidentiality

# Recent Federal Guidelines

## ☞ P.L. 105-277, OMB FY99 Appropriation

- ✓ Directs OMB to amend Section 1.36, Intangible property, of Circular A-110 "to require Federal awarding agencies to ensure that all **data produced under an award will be made available to the public through the procedures established under the Freedom of Information Act**" (FOIA).

- ◆ Applies only to:

- data produced with Federal support that are cited publicly and officially by a Federal agency in support of an action (regulations or administrative orders) that has the force and effect of law.
- data that first produced in a project that is supported exclusively with Federal funds or in a project with both Federal and non-Federal support.
- Institutions of higher education, hospitals, and non-profit institutions.

- [http://grants.nih.gov/grants/policy/a110/a110\\_guidance\\_dec1999.htm](http://grants.nih.gov/grants/policy/a110/a110_guidance_dec1999.htm)

# Recent Federal Guidelines

- ☞ P.L. 106-55, Treasury & General Government FY01 Appropriation
  - ✓ Directs OMB to issue government-wide guidelines that “provide policy and procedural guidance to Federal agencies **for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information)** disseminated by Federal agencies.” By October 1, 2002, agencies must issue their own implementing guidelines that include “administrative mechanisms allowing affected persons to seek and obtain correction of information maintained and disseminated by the agency” that does not comply with the OMB Guidelines.

Table 2

Associations Between Characteristics of Second-Year and Higher Doctoral Students and Post-Doctoral Fellows at 50 U.S. Universities and Data Withholding/Bivariate Analyses, 2003\*

Characteristic	No. (%) who had been denied access to published information, data, and materials	<i>p</i> value	No. (%) who had been denied access to unpublished information, data, and materials	<i>p</i> value	No. (%) who had denied another's request for their information, data, and materials	<i>p</i> value
<b>Overall</b>	246 (23.0)		221 (20.6)		85 (7.9)	
<b>Gender</b>						
Male	177 (24.1)	.2585	156 (21.2)	.5785	62 (8.4)	.4636
Female	69 (20.7)		65 (19.5)		23 (6.9)	
<b>Education level</b>						
Doctoral student	<b>184 (21.0)</b>	<b>.0021</b>	<b>156 (17.8)</b>	<b>&lt;.0001</b>	68 (7.8)	.7378
Postdoctoral fellow	<b>61 (31.6)</b>		<b>65 (33.7)</b>		17 (8.8)	
<b>Race/ethnicity</b>						
White	138 (25.8)	.1100	118 (22.1)	.5353	34 (6.4)	.1229
Asian	85 (20.4)		82 (19.7)		37 (8.9)	
Other	21 (20.2)		19 (18.3)		12 (11.5)	
<b>Industry support</b>						
Yes	81 (24.6)	.3769	77 (23.4)	.2473	<b>35 (10.6)</b>	<b>.0458</b>
No	125 (21.8)		114 (19.9)		<b>38 (6.6)</b>	
<b>Level of competition in lab/research group</b>						
High	152 (23.9)	.4275	<b>146 (23.0)</b>	<b>.0342</b>	<b>61 (9.6)</b>	<b>.0182</b>
Low	92 (21.7)		<b>74 (17.4)</b>		<b>23 (5.4)</b>	
<b>Field</b>						
Life sciences	<b>107 (27.1)</b>	<b>.0170</b>	94 (23.8)	.0589	22 (5.6)	.0388
Computer science and chemical engineering	139 (20.5)		127 (18.8)		<b>63 (9.3)</b>	

\* Values in bold indicate statistical significance at  $p < .05$ . Totals may vary due to missing data.

*Academic Medicine* 81(2), 128-136 (February 2006) **Data Withholding and the Next Generation of Scientists: Results of a National Survey.** Vogeli, Christine et al.

# Publication Practices & Responsible Authorship

- ☞ MSU Guidelines on Authorship
  - ◆ <http://www.msu.edu/~biomed/rcr/authorship.htm>
- ☞ Council of Science Editors
  - ✓ Authorship Task Force
    - ◆ [http://www.councilscienceeditors.org/services/atf\\_whitepaper.cfm](http://www.councilscienceeditors.org/services/atf_whitepaper.cfm)
  - ✓ Friedman, Paul J. A New Standard for Authorship
    - ◆ [http://www.councilscienceeditors.org/services/friedman\\_article.cfm](http://www.councilscienceeditors.org/services/friedman_article.cfm)
- ☞ Society for Neuroscience
  - ✓ Guidelines: Responsible Conduct Regarding Scientific Communication
    - ◆ <http://www.sfn.org/content/AboutSfN1/Guidelines/guidelines.htm>
- ☞ International Committee of Medical Journal Editors
  - ✓ Uniform Requirements for Manuscripts Submitted to Biomedical Journals
    - ◆ <http://www.icmje.org/>

# Friedman, Paul J. A New Standard for Authorship

- ☞ **CONCEPT** - the idea for the research or article, framing the hypothesis
- ☞ **DESIGN** - planning the methods to generate results
- ☞ **SUPERVISION** - oversight and responsibility for the organization and course of the project and the manuscript
- ☞ **RESOURCES** - dollars, equipment, space, personnel vital to the project
- ☞ **MATERIAL** - biological materials, reagents, referred patients
- ☞ **DATA COLLECTION &/or PROCESSING** - responsibility for doing experiments, managing patients, organizing and reporting data
- ☞ **ANALYSIS &/or INTERPRETATION** - responsibility for making sense of and presenting the results
- ☞ **LITERATURE SEARCH** - responsibility for this necessary function
- ☞ **WRITING** - responsibility for creating all or a substantive part of the manuscript
- ☞ **CRITICAL REVIEW** - reworking the manuscript for intellectual content before submission, not just spelling and grammar checking
- ☞ **OTHER** - for novel contributions
  - ✓ No one of these contributions constitutes the basis for authorship, but that it requires two or three, the appropriate minimum depending on individual circumstances, such as the number of authors.