



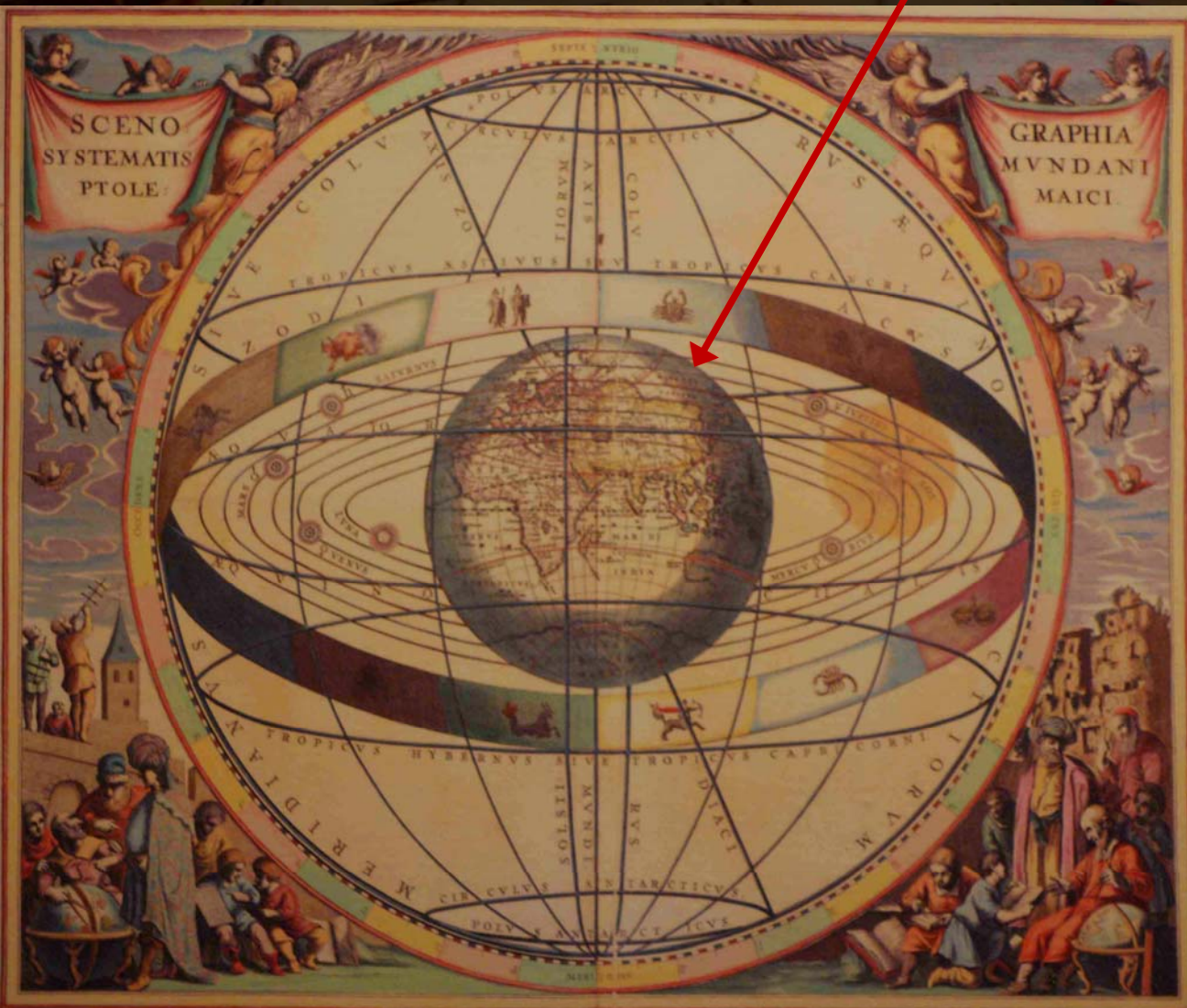
# Why, What, and How We Should Be Teaching About Research Integrity

Michael Kalichman, UC San Diego

Concurrent 1: Training for Responsible Research  
World Conference on Research Integrity  
Singapore, July 22, 2010



# Center of the Universe

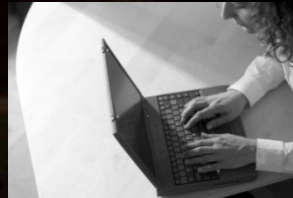
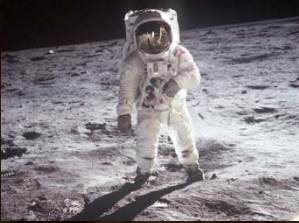


*Harmonia macrocosmica*  
(Harmonious universe)  
Amsterdam, 1661,  
Andreas Cellarius,  
German Cartographer

Dibner Hall of the History of  
Science, The Huntington,  
San Marino, CA

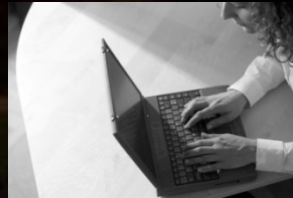
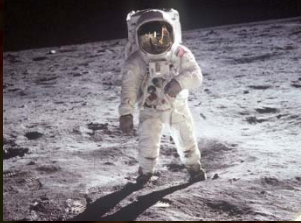


# Center of the Universe



**Research  
Misconduct**

# Center of the Universe



**Research  
Misconduct**



The background is a dark, textured image of a historical celestial globe. The globe features a grid of lines representing celestial coordinates and is surrounded by Latin text. A prominent red arrow points from the top right towards the center of the globe, specifically towards the main title area.

# Research Misconduct

(Serious, Deliberate Dishonesty)

## Necessary Failures:

- Understanding of risk of Bias
- Data Management (incl. Recordkeeping)
- Authorship (Credit and Responsibility)
- Understanding of meaning of Publication
- Collaboration (Transparency, Openness)
- Peer Review
- Whistleblowing roles and responsibilities

The background is a detailed historical astronomical chart, likely a celestial globe or a similar diagram. It features a central globe with a grid of latitude and longitude lines. Surrounding the globe are various celestial lines, including the ecliptic and the zodiac. The chart is filled with Latin text, including "SCENO SYSTEMATIS PTOLE" on the left and "GRAPHIA MVNDAN MAICI" on the right. A red arrow points from the top right towards the center of the globe.

## Track 3:

# Training for Responsible Research

### Goals:

What are we trying to accomplish?

### Audiences:

Who should be taught?

### Settings:

Where should this be taught?

### Tools:

How can we best teach in this area?

### Topics:

What should be covered in our teaching?





## Goals:

# What are we trying to accomplish?

### Knowledge

- Ethics, rules & regulations, methods of science, resources

### Skills

- Ethical decision-making, problem solving, communication

### Attitudes

- Importance, responsibility

### Behavior

- High standards, effective communication, no research misconduct



# Audiences: Who should be taught?

Graduate Students

Postdocs

Undergraduate Students

Staff, Administrators

Ethics Committee Members

Faculty (New, Senior)



## Settings:

Where should this be taught?

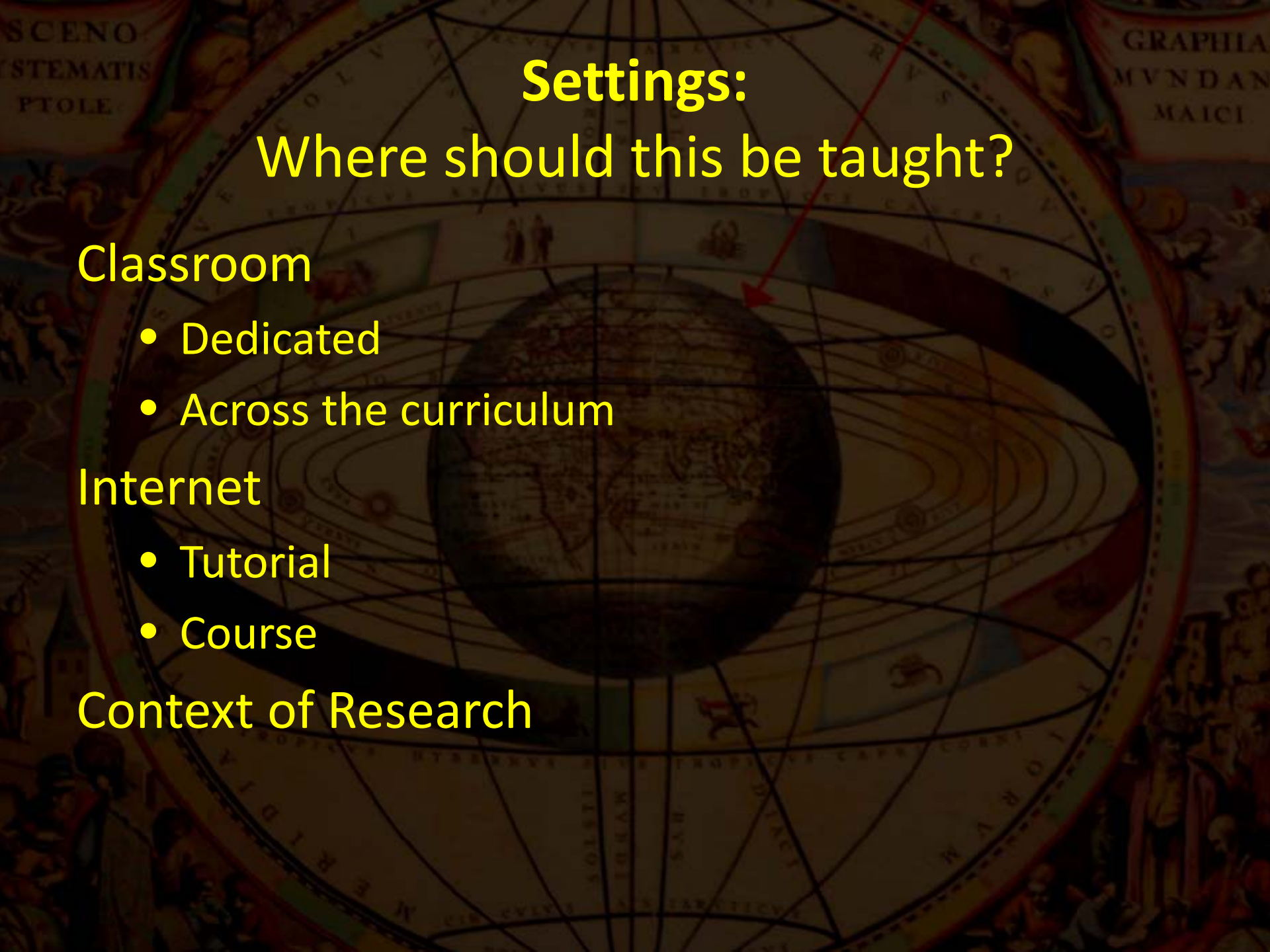
### Classroom

- Dedicated
- Across the curriculum

### Internet

- Tutorial
- Course

### Context of Research





## Tools:

How can we best teach in this area?

Case Studies

Role Playing

Debates

Email Discussion

Video

Question-based lectures

Surveys

Journal Publications

Literature

Current events

Student Teaching

Guest Faculty

Textbooks



# Topics:

## What should be covered in our teaching?

### General Topics

Data Management  
Conflict of Interest and Commitment  
Collaboration  
Authorship  
Publication  
Peer Review  
Mentoring  
Social Responsibility  
Research Misconduct  
Questionable conduct of research  
Asking Questions  
Dispute Resolution  
Whistleblowing

### Specific Topics

Human Subjects  
Animal Subjects  
Stem Cells  
Dual Use Technology  
Environmental Protection  
Computational Biology  
Computers and Information  
Technology  
High Energy Physics  
Cultural Anthropology



# Proposed Track 3 Outcomes

For possible goals, audiences, settings, tools, and topics:

- Identify areas of multi-national agreement
- Articulate areas of significant disagreement
- Identify evidence-based best practices
- Propose mechanisms for creating or facilitating multi-national collaborations to address areas of common interest

Further Information: <http://research-ethics.net>