Humanities, Science, Scimat

Lui Lam

Department of Physics, San Jose State University, USA
Institute of Physics, Chinese Academy of Sciences, China
China Research Institute for Science Popularization, China
Misunderstandings on Humanities & Science

- **Science = Natural Science**

- **Science = Natural Science + Social Science**

- **Humanities are not part of science** (since humans are not part of Nature or are uniquely distinct from other animals).

- **Humanities cannot be part of science** (since humans are too complicated or a human brain cannot study itself).

- Research in humanities is through understanding but not observation, which is the method of natural science.

- The aim of natural science is to establish a uniform model while that of humanities is to increase our understanding of life’s varieties.

These misunderstandings caused all sorts of problem and tragedy in human history. **To overcome these misunderstandings a proper definition of science is needed!**
Cambodia (1975-1979)

Mistaken a social science **hypothesis** as a proven **theory** and put it in practice; casualty: **2 million dead.**
Why the Humanities Are Important

Importance of humanities could be seen:

1. If all present “science” research is stopped, the world is still the same—chaos and tragedies will continue—because it is the humanities (underdeveloped in the last 2600 years since Plato) that matters in human affairs.

2. Another way of seeing this is through the lesson of Apple company.

Putting a good humanist among “scientists”/engineers could create great companies—good for the economy.
Improper and Imprecise Definition

An example

American Physical Society:

Science is the **systematic** enterprise of gathering knowledge about the **world** and organizing and condensing that knowledge into **testable laws** and theories.

Problems:

• According to this definition, Newton's prediction that the world will end in the year 2060 (through careful study of the Bible) is science.

• **Systematic**: Signature of mature science only; early or initial stages of science will be excluded.

• **World**: World = Universe? World = Nature?

• **Testable laws**:
  1. possible only in simple cases (deterministic or repeatable experiments.);
  2. not so easy for complex systems (e.g., Darwin's evolution theory);
  3. impossible in other cases (probability predictions like climate change/global warming).
The Nature of Nature

Does Nature include humans?

Yes, because

• Nature includes all material systems.
• Humans is a material system made up of atoms.

Moreover,

• Einstein’s Brownian motion theory (1905) shows (indirectly) that atoms do exist.
• Darwin’s evolution theory (1859): Humans, like other animals, evolved from other more primitive creatures and organisms.

Consequently, all studies about humans (humanities in particular) are part of science.
Why Humanities Do Not Look Like Science

In any scientific study, there are three research approaches/levels:

• Empirical
• Phenomenological
• Bottom-up

Humanities (since Plato) are mostly at the empirical and phenomenological levels, with some exceptions in last few decades.

A book showing all three approaches in the study of a humanities subject --Vienna portraiture from 1900 to present

Eric Kandel
Nobel Laureate
Neurobiologist
Columbia University

2012
Birth of Disciplines & of Science

**Philosophy** (600 BC, “love of wisdom”; Pythagoras; 13c, English)

- ‘Philosophy’ (humans)
- Theology (including Natural Theology) (God)
- Medical science does not fit into ‘Philosophy’ or “Natural Science”; it is part of Scimat (Science Matters, 人科) which includes all human matters.

**Humanities** (14c)

- “Philosophy”
- History
- Religion
- Economics
- Sociology

**Science** (14c)

- (“pursuit of knowledge”, firm theories)
- “Natural Science” (14c)
- Scientist (1834)
- Scientific Method (1854)

**Science** (2008)

- God invoked

**God of the gaps** (19c, absorbed into Theology)

**Medical science does not fit into ‘Philosophy’ or “Natural Science”; it is part of Scimat (Science Matters, 人科) which includes all human matters.**
Retreat of God As Science Expands

Natural Philosophy

Philosophy

Early Greek time (2,600 years ago)

‘Philosophy’ (Humans)

14th century

Social Science

Humanities

“Natural Science”

Theology

Religion (existence of God not assumed)

Science, no God

God could be brought in

Scimat (humanities + social science + medical science)
Science is humans’ (earnest and honest) pursuit of knowledge about all things in Nature (which includes all human and nonhuman material systems) without bringing in God or any supernatural.

- “Natural science” did enlighten our understanding of Nature (e.g., big bang), make our living easier (cell phone), and help prolonging our life (for good or bad).
- But it is the humanities that determine our quality of life (e.g., to pollute or not to pollute) and bring us genuine happiness (human relationships, arts).
- Also, it is humans (through decision making, a branch of humanities) who controls the use of “natural science”.
- And that is why the humanities (itself part of science) are more fundamental and important than “natural science”.
Implication 1: Science and Religion

- Science, by definition, has nothing to do with religion.
- But religion has everything to do with science whenever its sayings conflict with “established” scientific facts/theories.

Caution

- Scientific “facts/theories” (e.g., projectile path, safety of food/medicine) could change with time (those that pass the Reality Check will be retained).

Before Galileo (Aristotle)  After Galileo (~400 yr ago)

- And religion can easily cope by using “God of the gaps” (e.g., Newton), and make itself viable by retreating fast enough (e.g., Pope, 1992, 1996)
Implication 2: Science and Antiscience

Marriage (conventional definition):
1. A legal piece of paper
2. Signed by a woman and a man (who promise to take care of each other).

Anti-Marriage
is usually not against point 1 but is about point 2, which could mean replacing it by:
a legal document signed by a woman and a man, a women and a woman, or a man and a man.

It is a matter of definition of Marriage.
Science

Similarly, the so-called antiscience is not against science *per se* (except for Plato) but are about

1. application of science,

2. choice of research topics,

3. allocation of government resources.

All these disputes are human-dependent matters, part of science (scimat),

There is no such thing called antiscience, except for those dishonest scientists (including those in humanities) who cheat; they are antiscientists.
Implication 3: Philosophy, History, Sociology & Communication of Science

Philosophy, History, Sociology and Communication of Science, by focusing on “natural science”, are doing only half of the job. The other half concerns complex systems (including the humanities).

- Thales (c. 624 BC-c. 546 BC)
- Aristotle (384 BC-322 BC)
- Galileo (1610)
- Newton (1687)
- Arab
- Dark Age
- Renaissance
- Enlightenment
- Adam Smith (Economics, 1776; The Wealth of Nations)
- Condorset (Progress of the Human Mind, 1795)
- Auguste Comte (Sociology, 1844)
- Charles Darwin (On the Origin of Species, 1859)

1723-1790
1743-1794
1809-1882
1798-1857
1918  CAI Yuanpei:

There is science in humanities, vice versa.

- He opposed separating science from humanities.
- Reorganized Peking University into departments
- Reformed the curriculum—the beginning of general education in China.
1959  C. P. Snow:

• With rapid advance of “natural science” in the last 200 years, humanities were underdeveloped and two cultures (humanities and science) were formed.

• The method to bridge the gap advocated by Snow (adopted in general education, in China and the West) is to ask each side to learn something about the other side.

• This is ineffective and insufficient. The effective step is to educate all students on the common principles governing both sides: chaos, fractals and active walks. Better, teach them the proper definition of science.
Implication 5: A New General-Education Course Is Needed

Contents Summary

Prolog
1 Introduction 2

PART I BASIC
2 Humans 4
3 Knowledge, Nature, Science and Scimat 9
4 Science and Scimat, Again 29
5 History 54
6 Arts 72
7 Philosophy 93

PART II EXTRA
8 The Two Cultures Problem 103
9 Philosophy and Sociology of Science 111
10 History of Science 130
11 Science Communication 142

PART III EXTRAORDINARY 155
12 Why the World Is So Complex 157
13 Does God Exist? 166
14 Su Dong-Po’s Bamboo and Paul Cézanne’s Apple 178

PART IV BONUS 189
15 How to Do (Good) Research 191
16 On Intuition and Innovation 204

Epilog 213
Index 215
Importance of Scimat

Friedrich Hayek, Economics Nobelist (1974):
Humanity advances through new concepts.

Examples

• “All men are born free” brings down slavery.

• “All men are born equal” eliminates royalties and totalitarian regimes.

• “All women are born equal, too” removes restrictions on women’s rights in education, employment and voting.

• Scimat is a concept that is equally important, removing barriers between humanities and “science”, enabling a more peaceful world and better humanity.
Raising the scientificity (scientific level) of the humanities will help to increase the enrollment in the humanities in universities.
How to Raise Humanities’ Scientificity

- Through the collaboration of humanists and “scientists”
- More research with the bottom-up approach.

Examples: books by humanists

1986

2003

2004
History
Regime lifetime of each Chinese emperor
chronological order

- Number of emperors = 231 yr
- Average \( \tau_R = 12.5 \) yr (ranges from 1 to 61 yr)
- Total span = 2886 yr (from Qin to Qing)

No trend!
**Law:** A Chinese dynasty can survive every 3.5 years if it lasts less than 57 years; beyond that, every 25.6 years (i.e., dynasty lifetime is discrete, or “quantized”).

**Remark:**
The “curse of history”, as Chinese dynasties are concerned, does exist.

**A quantitative prediction** (assuming dynasties fall into the bilinear lines):
Any dynasty after Qing, if exists, will either
1. last 290 years or less and fall on the two lines, or
2. end definitely and exactly in its year of 329.
Arts
Two types of arts

Applied Arts

Pure Arts
What are in common between these three famous pure arts?

Five criteria of pure arts that last:

1. Aim at receiver’s neurons
2. Kill time
3. Kill time gently and harmlessly
4. Passivity
5. Human creation or intervention

See Arts: A Science Matter (2011)
The International
Scimat Program
The International Scimat Program

Established 2007

Aim

- Return to Aristotle’s tradition of treating everything in Nature as equally important in pursuit of knowledge (but without bringing in God/supernatural).
- Return to Cai Yuanpei’s tradition of non-separation of humanities and science.

Let the Earth be peaceful forever!
The biennial international scimat conference series

The First International Conference on

SCIENCE MATTERS: A UNIFIED PERSPECTIVE

MAY 28-30, 2007

Enseira, Portugal

“Everything in Nature is a part of science.”

All around and honest questions for knowledge are efforts to understand nature, which includes all human and nonhuman systems, the objects of study in science. This, broadly speaking, all these questions are science matters. The methods and tools used may be different, like, for example, the body of people use mainly their bodily senses and their brain as the information processor, while natural scientists may use, in addition, measuring instruments and computers. Yet all these activities could be viewed in a united perspective—they are scientific developments at varying stages of maturity and have all to learn from each other. In this conference, we invite experts from different disciplines worldwide to share their experience and outlooks, and hopefully plan the future together.

Many of the topics included in this conference, are under the name of science and culture, science and art, science and society, etc. We do not think these descriptions are useful. For example, by saying “science and culture,” it implies that science and culture are two different things which could be opposing each other. Instead, we view them as different aspects of the same thing—the efforts to understand nature, and a new word “science matters” is called for.

Invited Speakers

Léonard Blaïstein (Portugal, The nature of science)
Paula Borges (Portugal, Communication & science of mankind)
Maria Burguete (Portugal, History & philosophy of contemporary chemistry)
Paul Caro (France, Culture through science: A new world of images and stories)
Cara Penas (Portugal, Biology: Manipulation of scientific information)
Aldo de Nisi (Portugal, Arts neuroscience any theological consequences?)
Isabel Brito (Portugal, Psychology & life quality)
Gilbert Fay (Belgium, Policy failure: Stop telling, do it)
Bernardo Neudt (Portugal, Science & society)
Béatrice Hubaux (Germany, The role of physiology in sciences and art)
Lui Lian (USA, Historiophysics: Integrating history with physics)
Casa, post-Chinese Science and communication in China
Siwei Liu (China, Philosophy of science and Chinese scientists)
Dan Liu (China, History of science in 20th century)
Edgar Mann (France, Did a scientific revolution begin?)
Julia Trinchese (Portugal, Unified science or ecologies of practices?)
Maurício Sato (Brazil, Science & society)
Nigel Tetley (UK, The status of science: Communication, philosophy and education)
Michael Shermer (USA, The science of good and evil)

Advisors

Paul Caro (France)
Gilbert Fay (Belgium)
Béatrice Hubaux (Germany)
Jude Almeida-Nunes (Portugal)
Maurice Sato (Brazil)
Michael Shermer (USA)
Edward Wilson (USA)

Co-chaers

Maria Burguete (Portugal)
Lani Lian (USA, lian2003@gmail.com)

Contact

Maria Burguete
Email: maria.burguete@gmail.com
Fax: +34 977 658 370
Phone: +351 253 565 589

Sponsors

Centro de Estudos Sociais da Universidade Coimbra, Barclays Bank, Fundação Luso-Americana, Fundação para a Ciência e Tecnologia, Fundação Centro, Fundação Calouste Gulbenkian, British Council

Further information: www.ces.uc.pt/science_matters_meeting

---

The Second International Conference on Science Matters

ARTS & SCIENCE

HUMANITIES AS SCIENCE MATTERS

October 8-7, 2009, Estoril, Portugal

“Everything in Nature is a part of science.”

Science Matters (Scimat) is the new discipline that brings all human-dependent systems on point of science. Scimat includes all the logos covered by humanities and social sciences, arts in particular. This conference will discuss the relationship of science and culture, science and education, science and the economy, science and society, science and philosophy, science and religion, science and technology, science and environment, science and art, science and communication. The conference will be held together to focus on arts and sciences, to find out how each others worlds are performed and to exchange ideas. Hopefully, mutual understanding will be achieved and collaboration across disciplines will result, with the aim to raise the scientific level of all the disciplines. Contributed papers are most welcomed and encouraged.
Third International Science Matters Conference

ALL ABOUT SCIENCE
PHILOSOPHY, HISTORY, SOCIOLOGY & COMMUNICATION
Calouste Gulbenkian Foundation, Lisbon, Portugal
November 21-23, 2011

“Everything in Nature is part of science”

Science Matters (SciMat) is the new discipline that treats all human-dependent matters as part of science, wherein humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. Science is a subset of human activities aiming to understand how Nature (consisting of human and nonhuman systems) works. This Science process is a human-dependent matter and hence part of SciMat. This third international conference in the biannual series features discussions on human-dependent parts of science, emphasizing the philosophy, history, sociology and communication of science from the perspective of SciMat, while contributions from other topics of SciMat are welcome and encouraged. The conference is made up of review talks on all aspects of science by top experts around the world, and contributed papers. SciMat website: www.spcp.info/people/bran/s/cm

Invited Speakers

Claudine Fournier
Davide Papierno
Eugénio Rego
Isabel Barriopedro
José António Fernandes
Lucas Mota
Marcelo de Freitas
Maria Filomena Duarte
Mário Filipe
Paulo Carneiro
Rui Miguel Tiago
Rui Viegas
Sérgio Bento
Sérgio Mamede
Sofia Braga
Sónia Ferreira
Teresa Carrasqueira

Invited Speakers

Fernanda Lemos Delgado
Jaimae Pennington

International Advisors

Paul Carr (France), Detlev Ganten (Germany), Jenna Fishel (Belgium), Jörg Hoppe (Germany), Don Liu (China), Nigel Sanitt (UK), Michael Shermer (USA), Edward O. Wilson (USA)

Sponsors

This conference is under the auspices of the International Science Matters Committee, members: Mário Magela (Portugal), Paul Carr (France), Sofia Raposo (Belgium), Nigel Sanitt (UK), Michael Shermer (USA), Edward O. Wilson (USA) and Robert Womersley (Australia).

Further Information: www.sciencemattersconferences.com

4th International Conference on Science Matters

Humanities as SCIENCE MATTERS
History, Philosophy & Arts

“Everything in Nature is part of science.”

Science Matters (SciMat) is the new discipline that treats all human-dependent matters as part of science, wherein humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. Humanities, the knowledge about humans, are thus a part of SciMat. Like in any other subject, humanities could be studied at three different levels or with three approaches - empirical, phenomenological and the bottom-up. This fourth international conference in the biannual series covers all three approaches with particular attention paid to the bottom-up approach. It will emphasize History, Philosophy, and Arts (including Literature). The conference will feature reviews by top experts from around the world, plus contributed papers.

Casa do Infante, O’Porto
PORTUGAL, 15th - 17th October 2013

Eust Angela University, United Kingdom
Kasia Berg
Science History & Philosophy professor, Portugal
Mara Burguete
European Academy of Sciences, Arts & Letters, France
Jean Connerade
Maitre de conférences, France
Anne Sophie Godfrey
Science & Gender
European Academy of Sciences, Arts & Letters, France
François Catte
San José State University professor, United States
Stefi Lam
Arts professor, Portugal
Marta de Menezes
Art and Biology: A Story about Art Research
Biology Professor, Minho University, Portugal
Alexandra Nobre
University College London, United Kingdom
Hauke Riesch
Atlantic Institute, Sausalito, CA
GSIMTH and SUNY United States
E. Bastidas
Indigenous Knowledge Systems and Science
Panthéon Forum Director, United Kingdom
Nigel Sanitt
Université de Perpignan Via Domitia, France
David Schimmel
Insights into Solid State Physics: Basic Phenomena and Teaching
Architect & Designer, Portugal
RITA ROQUETTE DE VASCONCELOS
Architecture & Form
European Academy of Sciences, Greece
GREGORY VASTZINGO
Heuristic Potential of Anglerfish Simulator

Cohairs:

Maria Burguete (Portugal, confociencesmatters@gmail.com) and Nigel Sanitt (UK, nigel@sanitt.com)

International Advisors:

Manuel Bicho (Portugal), João Carraça (Portugal), Patrick Hopping (USA), Brigitte Hoppe (Germany), Luc Lam (USA), John Brianne UK), David Papineau (UK), Michael Shermer (USA), Edward O. Wilson (USA) and Robert Womersley (Australia).

Further information www.sciemat-2013.com
International Science Matters Committee

ISM C (established May 30, 2007)

Members

1. Manuel Bicho (Portugal)
2. Peter Broks (UK)
3. Maria Burguete (Portugal)
4. João Caraça (Portugal)
5. Paul Caro (France)
6. Jean-Patrick Connerade (UK)
7. Patrick Hogan (USA)
8. Brigitte Hoppe (Germany)
9. Lui Lam (USA) – Coordinator
10. Bing Liu (China)
11. Dun Liu (China)
12. John Onians (UK)
13. David Papineau (UK)
14. Nigel Sanitt (UK)
15. Ivo Schneider (Germany)
16. Michael Shermer (USA)
17. Robin Warren (Australia)

Aim

To promote the scimat idea and push the International Scimat Program.

President of European Academy of Science Arts and Letters

Author of *Cognitive Science, Literature and the Arts*

Father of Neuroarthistory

President of British Society for Philosophy of Science (1993-1995)

Columnist, *Scientific American*; editor, *Skeptic* magazine

Nobel Laureate (2005)
Step 3

The scimat book series

Connecting Great Minds

SCIENCE MATTERS SERIES
Founder and Editor: Lui Lam

Science Matters (Science Matters) is the new discipline that treats all human-dependent matters as part of science, whereas, humans (the material system of Homo sapiens) are studied scientifically from the perspective of complex systems. That “Everything in Nature is Part of Science” was well recognized by Aristotle and da Vinci and many others. Yet, it is only recently, with the advent of modern science and experiences gathered in the study of evolutionary and cognitive sciences, neurosciences, statistical physics, complex systems and other disciplines, that we know how the human-related disciplines can be studied scientifically. Science Matters Series covers new developments in all the topics in humanities and social sciences from the Science Matter perspective, with emphasis on the humanities.

Science Matters Series - No. 3
All About Science
Philosophy, History, Sociology & Communication
edited by Maria Burgess (Berni da Rocha Cultural Institute for Scientific Research) & Lui Lam (San Jose State University)

There is a lot of confusion and misconception concerning science. The nature and contents of science is an unsolved problem. For example, Thales of 2,600 years ago is recognized as the father of science but the word science was introduced only in the 15th century: the definition of science is often avoided in books about philosophy of science. This book aims to clear up all these confusions and present new developments in the philosophy, history, sociology and communication of science. It also aims to showcase the achievements of China's top scholars in these areas. The 18 chapters, divided into the parts, are written by prominent scholars including the Nobel laureate Robin Warren, sociologist Harry Collins, and physicist-naturalist historian Dietrich Stauffer.

Contents: About Science 1: Basics — Knowledge, Nature, Science and Scimat (Lam); About Science 2: Philosophy, History, Sociology and Communication (Lam); Philosophy of Science: Towards a Phenomenological Philosophy of Science (Cao Sheng Wei); The Predicament of Scientific Culture in Ancient China (Hong-Sheng Wang); What Do Scientists Know? (Nigel Sanjit); How to Deal with the Whole: Two Kinds of Holism in Methodology (Xun Yang Liu); History of Science: Multidisciplinary: The Ease and Difficulty of a New Discovery (Robin Warne); Science in Victorian Era: New Observations on Two Old Theories (Chen Lai); Medical Studies in Portugal Around 1911 (Maria Burgess); The Founding of the International Liquid Crystal Society (Lam); Sociology of Science: Three Waves in Science Studies (Harry Collins); Solutions and Resolution in China, 1978–1993 (Lam); Scientific Culture in Contemporary China (Bing Lu and Mei-Fang Zhang); Communication of Science: Science Communication: A History and Review (Peter Brookes); Popular Science Writings in Early Modern China (Jun Xin); Other Sciences: Understanding Art Through Science: From Socrates to the Continental Brain (Kati Berg); Spy Video Games After W11: Narrative and Pleasure (Jing-Jing Wang); Statistical Physics for Humans: A Tutorial (Dietrich Stauffer).

Readership: Humanists, social and “natural” scientists, and laypeople interested in science.

45app 
978-981-4472-92-0 US$88 $88
978-981-4472-93-7 (tubepack) US$114 $114

Enter WSSLAAA25 to enjoy a 25% discount! Valid till 28th Feb 2015

World Scientific
Connecting Great Minds

Prefered Publisher of Leading Thinkers

ORDER FORM

Please complete the form and send it to any of our offices below. Alternatively, you can order via our online bookstore at www.worldscientific.com

<table>
<thead>
<tr>
<th>TITLE SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOK OF DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METHOD OF PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECK</td>
</tr>
<tr>
<td>DEBIT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUSTOMER NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
</tr>
</tbody>
</table>

Please fill in company/Institution details. Details for payment and delivery will be added on confirmation of order.

Prefered Publisher of Leading Thinkers

World Scientific
Connecting Great Minds

Enter WSSLAAA25 to enjoy a 25% discount! Valid till 28th Feb 2015

World Scientific
Connecting Great Minds

Prefered Publisher of Leading Thinkers

ORDER FORM

Please complete the form and send it to any of our offices below. Alternatively, you can order via our online bookstore at www.worldscientific.com

<table>
<thead>
<tr>
<th>TITLE SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOK OF DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METHOD OF PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECK</td>
</tr>
<tr>
<td>DEBIT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUSTOMER NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
</tr>
</tbody>
</table>

Please fill in company/Institution details. Details for payment and delivery will be added on confirmation of order.

Prefered Publisher of Leading Thinkers

World Scientific
Connecting Great Minds

Enter WSSLAAA25 to enjoy a 25% discount! Valid till 28th Feb 2015

World Scientific
Connecting Great Minds

Prefered Publisher of Leading Thinkers

ORDER FORM

Please complete the form and send it to any of our offices below. Alternatively, you can order via our online bookstore at www.worldscientific.com

<table>
<thead>
<tr>
<th>TITLE SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOK OF DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METHOD OF PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECK</td>
</tr>
<tr>
<td>DEBIT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUSTOMER NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
</tr>
</tbody>
</table>

Please fill in company/Institution details. Details for payment and delivery will be added on confirmation of order.

Prefered Publisher of Leading Thinkers

World Scientific
Connecting Great Minds

Enter WSSLAAA25 to enjoy a 25% discount! Valid till 28th Feb 2015

World Scientific
Connecting Great Minds

Prefered Publisher of Leading Thinkers

ORDER FORM

Please complete the form and send it to any of our offices below. Alternatively, you can order via our online bookstore at www.worldscientific.com

<table>
<thead>
<tr>
<th>TITLE SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOK OF DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METHOD OF PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECK</td>
</tr>
<tr>
<td>DEBIT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUSTOMER NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
</tr>
</tbody>
</table>

Please fill in company/Institution details. Details for payment and delivery will be added on confirmation of order.

Prefered Publisher of Leading Thinkers

World Scientific
Connecting Great Minds

Enter WSSLAAA25 to enjoy a 25% discount! Valid till 28th Feb 2015

World Scientific
Connecting Great Minds

Prefered Publisher of Leading Thinkers

ORDER FORM

Please complete the form and send it to any of our offices below. Alternatively, you can order via our online bookstore at www.worldscientific.com

<table>
<thead>
<tr>
<th>TITLE SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOK OF DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METHOD OF PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECK</td>
</tr>
<tr>
<td>DEBIT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUSTOMER NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
</tr>
</tbody>
</table>

Please fill in company/Institution details. Details for payment and delivery will be added on confirmation of order.

Prefered Publisher of Leading Thinkers

World Scientific
Connecting Great Minds

Enter WSSLAAA25 to enjoy a 25% discount! Valid till 28th Feb 2015

World Scientific
Connecting Great Minds

Prefered Publisher of Leading Thinkers

ORDER FORM

Please complete the form and send it to any of our offices below. Alternatively, you can order via our online bookstore at www.worldscientific.com

<table>
<thead>
<tr>
<th>TITLE SELECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
<tr>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOOK OF DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>METHOD OF PAYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECK</td>
</tr>
<tr>
<td>DEBIT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUSTOMER NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
</tr>
</tbody>
</table>

Please fill in company/Institution details. Details for payment and delivery will be added on confirmation of order.

Prefered Publisher of Leading Thinkers

World Scientific
Connecting Great Minds

Enter WSSLAAA25 to enjoy a 25% discount! Valid till 28th Feb 2015
Science Matters
Humanities as Complex Systems

Maria Burguete and Lui Lam
Editors

ARTS
A SCIENCE MATTER

MARIA BURGUETE AND LUI LAM
EDITORS
Establish 100 scimat centers worldwide

The Center is:

- To do fundraising to support the Center financially.

- To organize international workshops/conferences and summer/winter schools.

- To give out an Award every two years (for an individual who contributes significantly in the advancement of scimat).

- To host short-term visiting scholars (who will give lectures/short courses, who will also collaborate with existing faculty members and students of any discipline, especially from the humanities).

- To help match faculty members from humanities and science departments, and give them release time to create new interdisciplinary courses such as a course on “Science of History”.

- To help spread the new, ultimate general-education course on “humanities + science” for undergrads of all majors.
Conclusion

1. **Science** is humans’ pursuit of knowledge about all things in Nature *without* bringing in God or any supernatural.

2. Humanities are part of science.

3. Humanities are equally (or more) important than “natural science”.

4. Raising humanities’ scientificity through interdisciplinary collaboration will lead to better decision making and a better humanity.

5. The proper image of science is:

   (not test tubes or nuclear symbol…)
The Ideal University Campus

Red: Scimat
Blue: “Natural science”
Engineering and professional schools outside of this circle and behind the appropriate disciplines