CENTER FOR
ETHICS
SUSTAINABILITY
TECHNOLOGY

Ethics of technology and science
Introduction

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The course

- Lecture, discussion class, seminars
- *Literature*: Good research practice, links, papers
- *Examination*: Participation, individual and group work, presentations, home exam
- Focus on ethical guidelines, research issues, practical method sand skills

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Program

Date, room	Subject	Presenter	Literature, etc.
28 Oct, 2115 13.15-15.00	Introduction	Iordanis	Links, papers
03 Nov, 2115 10.15-12.00	Discussion class, ethical theory	Thomas	Links
10 Nov, 2115 13.15-16.00	General research issues	Groups	Good RP, Papers, Abstracts, Slides
18 Nov, 2115 13.15-16.00	Field specific issues	Groups	Slides
05 december, deadline	Home exam		

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Problems

- General research ethics issues, such as:
  - ethical problems of publishing, plagiarism, supervising, authorship, funding, career, copyright, fraud, handling of research data, quality of research, codices and guidelines, etc.
- Field specific research ethics issues, such as:
  - Interviews and anonymity, biobanks and privacy, environmental impact, application of research findings, intellectual property, human life, using of laboratory animals, security, impact on society.

Inherent contradictions

- Scientific research
- Laboratory animals
- Publishing and learning
- Privacy
- Security
- ……….

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One example

You are leading a research project using the latest computer tools. You have gathered an enormous amount of data and a bio-informatician creates an algorithm to systematize the data. However, this operation transforms the richness of data to a few simple categories. You are convinced that if the results are presented in this simplified way there will be misinterpretations that will misguide future research. On the other hand you know that you can never get your research published unless you simplify your data.

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Principles, guidelines…

From VR, Good Research Practice

It is very important:
… contribute effectively to the transmission of new knowledge …
… enable the scientific community to scrutinize and discuss (p. 88)

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Ethics and morality

- Morality is "knowledge", i.e. answers to choices we feel we need to make in our lives as persons or groups
- Ethics is about the process of gaining this "knowledge"

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Answers or questions?

- **Content**: "Right actions are moral but wrong actions are immoral"
  - Common sense definition based on moral *content* and normative aspects, focused on satisfaction with the result

- **Choice**: "Morality and ethics are related to choice"
  - Philosophy and psychology base the definition on *choice* and option, focused on the quality of the process

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How to handle this issue?

- Philosophize, Φιλοσοφεῖν
- Philosophize on philosophizing, study philosophizing, e.g.:
  Platon: Socrates's *Maieytike* and *Aporia: κυβερνήτης* = governor, leader, philosopher
  Aristoteles: *Phronesis*
  Kant: Pure Reason. Dialectic Process, Heteronomy – Autonomy
  Piaget: Skills to handle moral problems
  Kohlberg: Education and support for development

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Is it easy or difficult?

Generally we are constrained because of our nature but ethics are harder:

- Incompatible values decide right and wrong
- Contradictory cases, e g. double standards
- Strong emotions
- Group and organizational constraints
- Authority is very important
- Focus on content not on process

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Rationality?

- **Open**: There is no limit, no end, everything can be related to everything
- **No base**: Premises have to be identified and questioned
- **Logically imperfect** thinking processes work fine

(no algorithms, no computer calculations)

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Ethical insecurity?

Handling of moral issues creates a big risk:
Important myths can be destroyed

- *For persons*: Resolution of problems, personal development, but risk to lose enthusiasm, get disoriented, lost, cynical

- *For organizations, society*: Hero, e.g. whistle blowing (courageous, responsible), or offend persons and principles (show no respect, disloyalty, treason, hostility)

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What do we need?

- *Ethical competence*: Know how to handle ethical issues, how to think
- *Ethical processes*: Roles, procedures, mechanisms in organizations
- *Ethical confidence*: Know that we can find good solutions and trust our ability (i.e. know that our skill and our way of handling moral issues is working)

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The normal way

- *Heteronomy:* automatic, dogmatic, constrained, authoritarian thoughts, instincts and reflexes
- *Advantages:* Quick, safe, economic, avoid responsibility
- *Disadvantages:* Bad control, chancing, difficult to explain

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The philosophical way

- *Autonomy:* Critical searching, systematic thinking, supervision, holistic
- *Disadvantages:* Demands time, resources and skill, create anxiety
- *Advantages:* Good control, insight, awareness, responsibility, easy to explain

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Ethical Competence

Ethical competence is the ability of a person or a group, who confronts a moral problem, to choose the right way to handle the problem at hand.

To do this one has to be able to see the difference between different ways of handling moral problems, and to be a master of thinking and acting in a way that independently, systematically and critically considers all relevant values, principles, interests, feelings, duties, needs and beliefs.

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Ethical competence
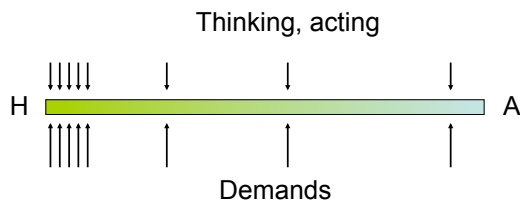
Thinking, acting

H [=======================] A

Demands

One example

You are leading a research project using the latest computer tools. You have gathered an enormous amount of data and a bio-informatician creates an algorithm to systematize the data. However, this operation transforms the richness of data to a few simple categories. You are convinced that if the results are presented in this simplified way there will be misinterpretations that will misguide future research. On the other hand you know that you can never get your research published unless you simplify your data.

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Heteronomy: giving up control and responsibility, one thought dominates

Automatic reactions
- It is going to be a big mistake!
- It is the bioinformatician's responsibility!
- This is fraud!
- This is the only way, everybody does the same.

Dogmatic fixations
- We should trust the experts!
- You should always follow the rules!
- Honesty is very important!
- Publishing is very important!
- The scientific community should be respected!

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Autonomy Skill

Autonomy thinking		All relevant values, interests, duties, feelings, needs, etc.					
		Scientific community	Relation to bionform.	Own career	Own reputation	(cont.)	…
All possible solutions	Bioinformatician's line	Informed, but risk for misinterpretations	Positive, but risk for future conflict	Publish, but risk of scandal	Irresponsible, but sharing	…	…
	Negotiate more	No information, but maybe safer later	Chance to secure info, but risk of conflict	Delayed publication but avoidance of problems	Withholding information, but cautious and serious		…
	… (cont.)	…	…	…	…	…	…

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OLE questionnaire

1. Will there be any ethical problems or conflicts in the context, in the organisation or in the group where your decision will be applied or your solution will be used (e.g. your research findings)?

2. Will your decision or solution cause any ethical problems or conflicts?

3. Are there any alternatives to your solution?

4. What groups, individuals, organisations, etc, will in any way be affected by or have a stake in

the development, use, application or mere existence of your decision and solution? (Including society at large and the environment.)

5. What values, interests, duties, standpoints and attitudes are involved in the use of your solution and of the possible alternatives?

6. What effects will your solution (and the alternatives) have on each of these values? What are

the strengths/possibilities and the weaknesses/risks of each solution to each value? Will these solutions fit certain values and conflict with others? What values and how?

7. What will you do to make sure that the use of the solution will be optimal with regards to ethical aspects? For instance, adapt the design of the product, use of research methods, cooperation with industry, information to stakeholders, etc? How exactly are you going to succeed with this?

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