

BETHUNE COLLEGE (BC) 1800.03

Where do biological facts come from?

Welcome – This course is taught by Professor Dawn Bazely (E-mail dbazely@yorku.ca) Phone: 416-736-2100 ext 20109, Office: Lumbers 206, Lecture times: Mondays 2:30 p.m. to 4 p.m., Place: Norman's - next to the Bethune College Master's office

Text book and references: *Mismeasure of Man*, any of your first year texts (preferably from biology), popular media and scientific journals

This course runs the whole year and has three main threads or themes:

1. What are biological "facts"?
 - how are biological data collected and published?
 - what does "peer-reviewed" mean?
 - what's a primary source as opposed to a secondary source?
 - why should I not believe things I read in the newspaper?
 - why should I not believe everything in my textbook?
 - why should I not believe everything that I read on the internet?
 - how can I evaluate information for its reliability?
2. How is biology (science) supposed to operate?
 - what's an experiment?
 - what's a hypothesis?
 - who was Karl Popper and who is Thomas Kuhn?
 - who is Peter Medawar?
3. How have biological facts been misused or misinterpreted in the past?
 - we will read the book, *The Mismeasure of Man* by Stephen Jay Gould (a highly respected Harvard evolutionary biologist) and, as well as learn about the use and abuse of data in the past, we will look at people who criticize Gould's politics and point of view.

Project 1 due mid Nov	10%	(based on ideas in <i>Mismeasure of Man</i>)
Project 2 due Feb 4 02	10%	(based on a figure from your text)
Project 3 due Mar 11 02	10%	(based on a newspaper article)
Mid-term	15%	Monday of 2 nd week of Jan 02 term
Final exam	25%	
Seminar presentation 1	10%	(based on a famous scientist/historian of science) to be done in the last 2 weeks of classes in January 02
Seminar presentation 2	5%	(2 students from each of the three groups will present findings from each Project (1-3))

Library research project grade - mark out of 20)	5%	(2.5% for doing it and 2.5% for your
Class participation	10%	based on attendance/questions etc.

Some important dates:

Monday 17 September	Steacie library tour
Monday 24 September	join BIOL 3100 class in Stedman Lecture Hall B for research lecture by Prof. Bazely
Monday 8 October	Thanksgiving

-other dates will be added to this list

Each class will be a combination of lecture, tutorial and seminar

Please come prepared with the readings done - your participation mark will be derived from the class discussions

Project 1

I will be selecting important figures who have contributed towards the philosophy of science: how we do experiments, what a hypothesis is, and whether science is truly objective - your work will be presented to the class. You will be linking these people's work to the ideas raised by Stephen Jay Gould in his book the *Mismeasure of Man*, which explores the political nature of science.

Project 2

I will be selecting diagrams from your text book and you will find out where the data actually came from - where they were originally published and by whom... more details later

Project 3

I will be selecting newspaper articles with scientific content and you will be finding out about the scientist's work - you will give a short presentation to the class!

Class presentations

These will be done both mid-way and at the end of the year! Don't worry about them now.