

## Measurement and Medicine: Normality and Abnormality

A television course for undergraduates satisfying part of the general and liberal education graduation requirements.

Proposed and being  
developed by  
The Department of Bioengineering  
Center for Integrated Science Education  
Media Solutions  
Division of Continuing Education  
University of Utah  
Salt Lake City, Utah 84112  
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### Summary:

Measurement and Medicine(MM): Normal and Abnormal You! is a completely new approach to "science" education. Using personal health and medicine as the key motivator, the course involves the students in a range of activities, concepts, and subjects which span much of modern science and biomedical engineering. The first semester focuses on measurement of personal physiology - addressing what is "normal"? The second semester applies the measurement and observation skills to abnormality - to pathology - with the goal of return to health (to normality). Since much of basic physics and chemistry was derived from basic studies in anatomy and physiology, the courses both derive and utilize the key principles and concepts of physics, chemistry, and biology in a relevant, personal way. The content builds on a solid, integrated science experience, such as the Science Without Walls: Science in Your World course.

MM is designed as a two semester telecourse with thirty intense one hour weekly telecasts and includes a personal laboratory (the Labless Lab) and a tutored "real" laboratory, conducted by qualified laboratory instructors at remote locations. The laboratory instructors will be specially trained and will use a unique Briefcase Lab, developed during the project. Although the content is delivered primarily via telecasts and Internet technologies, the hands on laboratory experiments are real, involving real people in real laboratory environments.

### Programs (each a 1 hour telecast)

#### Course 1: Measurement in Physiology - Are you Normal?

Prog 1: You are Abnormal!	Prog 6: You Can't Even Break Even	Prog 11: Newton Rules Biology - and You
Prog 2: You are Imperfect?	Prog 7: Hot Stuff - Warm Blood	Prog 12: Where Did the Energy Go?
Prog 3: Lies and Electrons	Prog 8: The Body Electric	Prog 13: Senses and Sensibility
Prog 4: More Power to You	Prog 9: The Body Magnetic?	Prog 14: The Photon World
Prog 5: Hiking, Diving, and Running	Prog 10: Gravity Wins!	Prog 15: Summary

#### Course 2: Measurement, Pathology, and Medicine - How Abnormal Are You?

Prog 16: You're Even more Abnormal!	Prog 21: Cystic Fibrosis and Oxygen	Prog 26: Neurodegenerative Diseases
Prog 17: Multiplying and Killing Cells	Prog 22: Hypertension and Heart Disease	Prog 27: Nerves and Brains
Prog 18: It's Your Parents' Fault!	Prog 23: Hopeless Organs	Prog 28: New Eyes and Ears
Prog 19: Problem Babies	Prog 24: Artificial Organs	Prog 29: Bio-Hybrid Devices
Prog 20: Diabetes and Metabolism	Prog 25: Old Bones - and Joints	Prog 30: Summary

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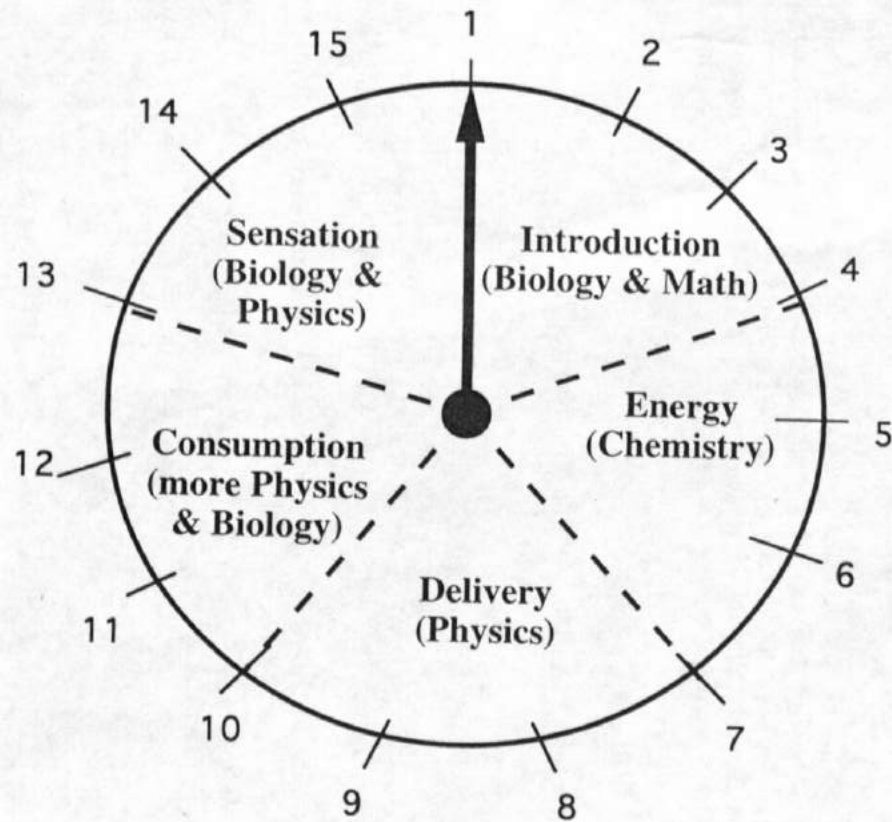
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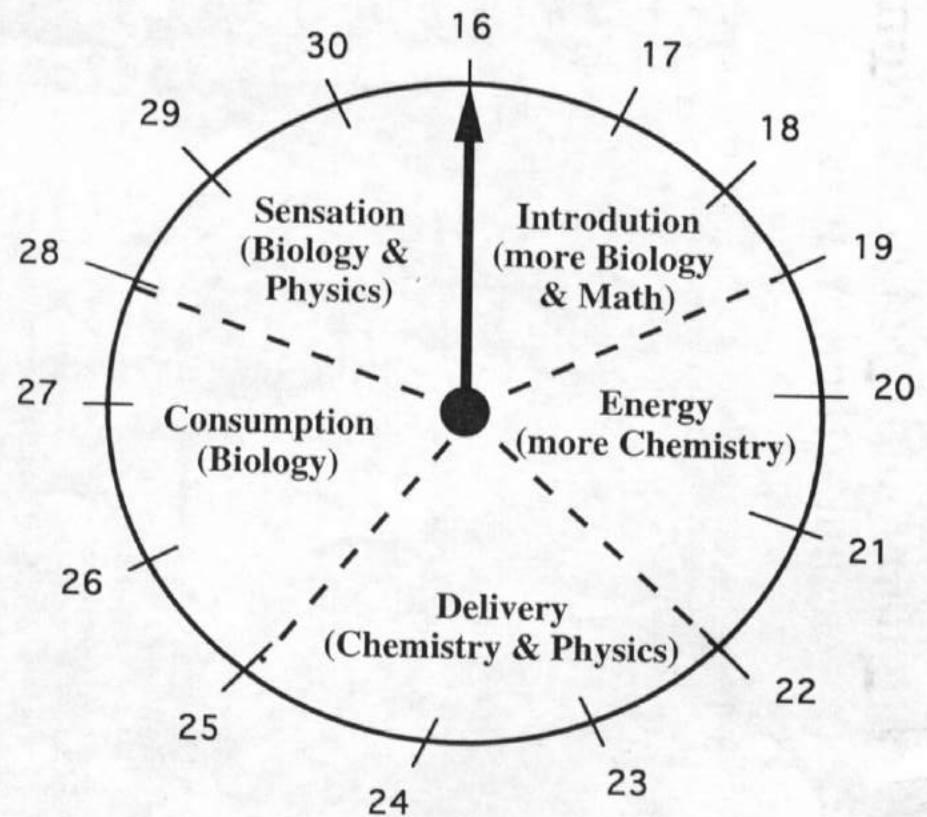
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# Bioengineering 1010/2010

## Measurement in Medicine: Normality and Abnormality?



**Bioengineering 1010:**  
Measurement in Physiology:  
 Are You Normal?



**Bioengineering 2010:**  
Measurement, Pathology, and Medicine  
 How Abnormal are You?