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# BME- Where Medicine Meets Engineering

— Michal Adamski, Katie Barlow, Madison  
Boston, Haley Knapp, Lizzie Krasteva —

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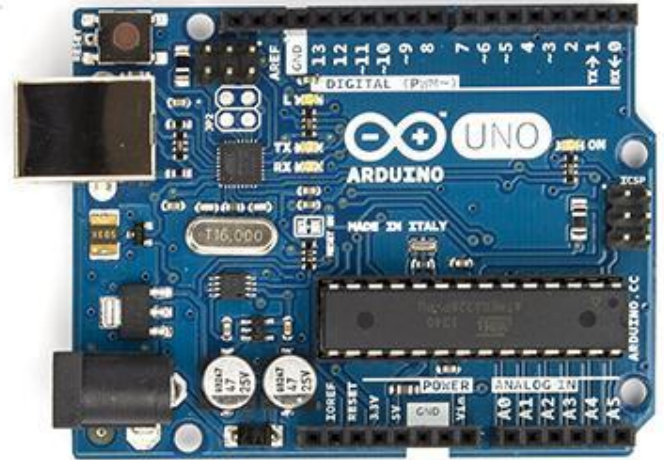
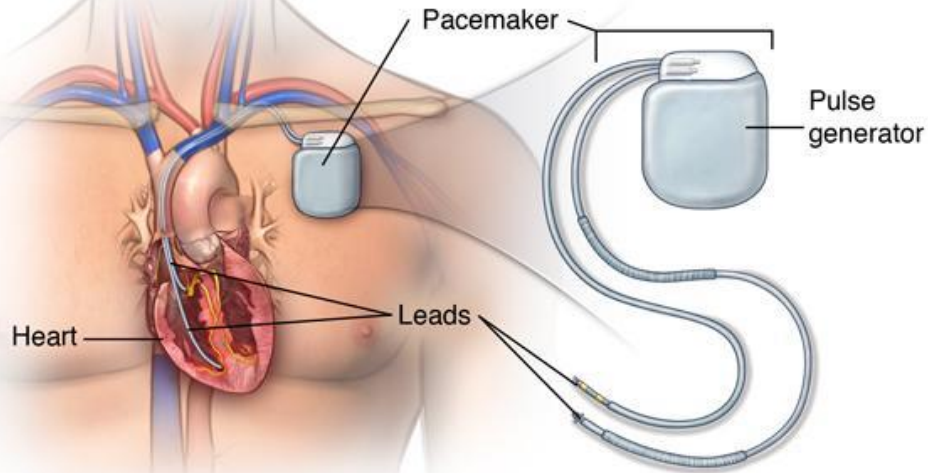
What do you think  
Biomedical Engineering is?

# Biomedical Engineering

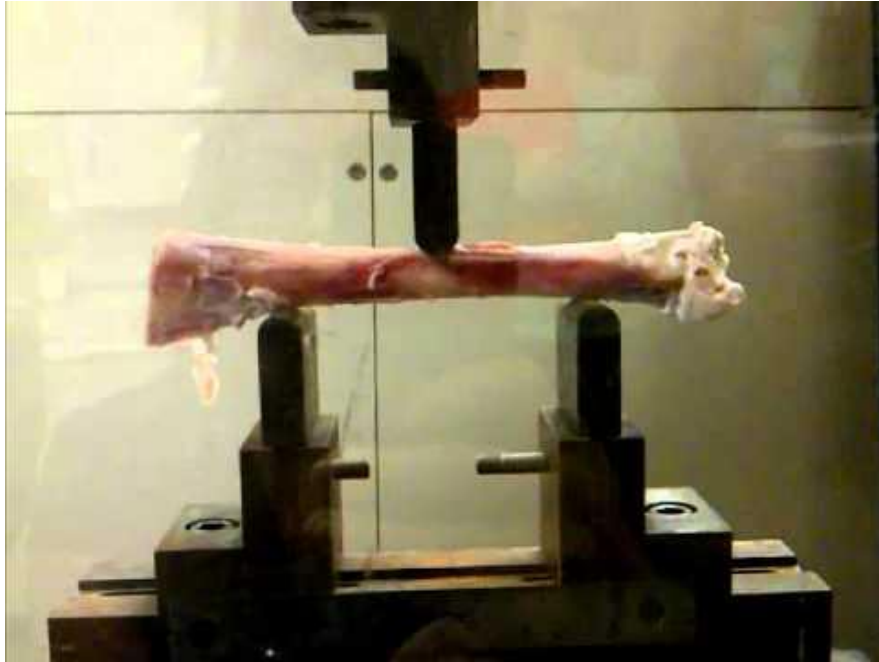
Biomedical Engineering is the application of engineering tools to solve problems in biology and medicine. Biomedical engineers assert their expertise in designing new medical instruments and devices, applying engineering principles to understanding and repairing the human body, and for medical decision-making.

# Bioinstrumentation

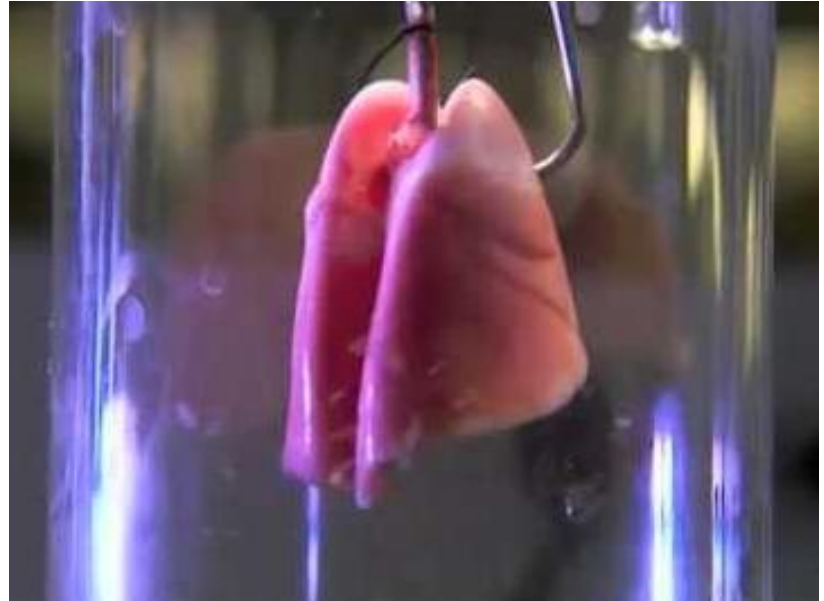
Pacemaker



# Biomechanics



# Biomaterials/Tissue Engineering



# Human Factors



EMIS (FOR, FamilyPractice) (Patient: CAFFREY, JENNET)

Action View Setup Activities Billing Reports Utilities Windows Help

Check In/Out

Date: 04/23/11 Office: 0001 Pr.: All

Appointments [04/23/2011]

App	Provider	G
08:00 A Goodman, George	EADE, JOHN (10731)	1. R 11:00
09:00 A AARON, JOHN (9851)		2. R 12:30
10:00 A BAARE, John (14033)		3. R 10:00
11:00 A CAFFREY, JENNET (154)		4. R 12:45
11:30 A OAKS, Mary (17110)		
12:30 P SABADO, John (17502)		
12:45 P IBARGUEN, Mike (7866)		

Appointments(s): 7 No Show: 3

Option In: R+

Check Out - CAFFREY, JENNET (15401)

DOB: 10/22/1970 40 Yr 6 Mo Phone: (W) (H) (510) 555-4101  
Address: 456 E Groop Street Rogersville MO 65742 Race:  
Verify: system Date:  
Primary Doctor: HOLLIDAY, Christina  
Referral Doctor:  
Case: GENERAL 02 Autho. No.:

Insurance ID Priority Start Date End Date Group No Copay S I  
P BC/BS OF MINNESOTA LT 5345345345 Primary 25 M

Send Inquiry Eligibility History Patient Ins. Case Ins. Insurance Card Insured By Missing View

Today's SuperBill Copay [Collected \$25.00] Bal. 25.00 CR

CPT	Amount	Allow. Amt	Copay	Note
1. 93000 EKG ROUTINE	41.00	41.00	25.00	
	41.00	41.00	25.00	

Follow Up Note:  
Give Patient Education Handout - On the Printer  
Click here to set as Reminder  
Follow Up Appointment:  
2 Week(s) Follow Up Visit  
Click here to set as reminder

Print Appointment Card

S	Date	Time	Provider
1.	05/07/2011	08:00 AM	Goodman, George

Select All Deselect All  
Click here to print appointment card

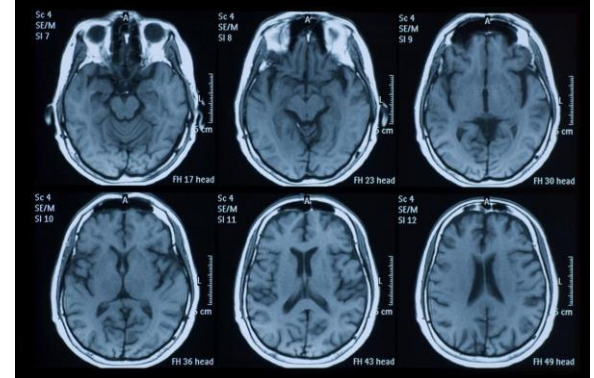
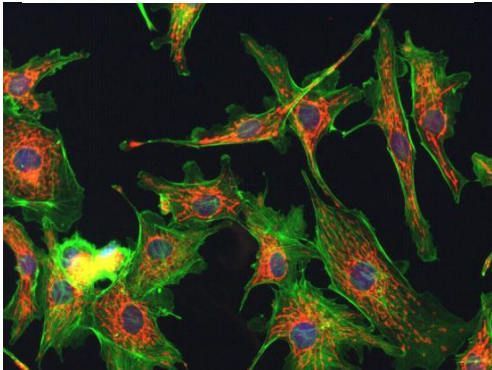
Options:  
Print VN, 1 letter(s), 2 careplan(s)  
Fax VN  
Prescription  
Follow Up  
Copay [Collected \$25.00]  
Rx Dispense  
Letter [Visit Note]  
Signed  
Filled  
Print/Scan

2 Careplan added  
Reminder  
Super Bill  
Lab Test  
Print Label

Walk In Chng Room  
Check Out Delete  
Move Up Move Down  
Copy Vitals  
Super Bill Print Bill

Ready  
Start EMIS (FOR, FamilyProc... Desktop 4-23-11 21:40:13 9:40 PM

# Medical Imaging





# Alginate

Natural Material

Comes from Algae

Encapsulation of Cells for Tissue E

Used in Wound Healing



# Activity

1. Pour calcium chloride into cup
2. Fill transfer pipet with 1% alginate
3. Carefully drip alginate into calcium chloride to initiate cross linking
  - a. Make sure the alginate is released in drops and not a continuous stream



**Contest:** What group can produce the largest round alginate bead?

What group can create the most alginate beads?

Use a spoon to extract the alginate beads from the calcium chloride

# Why BME?



Create innovative processes, implants, and devices for the prevention, diagnosis, and treatment of disease

Have a cross-functional role in departments of biology, medicine, and engineering

Over the next decade, Biomedical Engineering jobs are expected to grow by 72%

Work in industries such as medical equipment manufacturing, research & development, and pharmaceutical manufacturing

Use your knowledge and skills to help improve healthcare and make the