Computer Assisted Meat Science Education

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Before You Start

• Realize it will take time and resources

• Identify resources
  – Personnel
    • Content
    • Graphics
    • Programming
  – Software
  – Hardware

• Have a plan
Areas to Consider

- The Audience
- Content that will be shared
- Medium in which content is shared
  - Get by with the minimum
- Organization of material for student use
Goals of Computer Assisted Instruction

- Motivate
- Engage
- Provoke
- Instruct
- Tutor
- Interest
- Entertain
- Challenge
- Train
- Assess
Advantages of Computer Assisted Instruction

- Use multimedia approach
- Can be used anywhere
- Reinforce other instructional methods
- Easily modified
- Can be exciting
- Flexible – Non linear
Disadvantages of Computer Assisted Instruction

- Impersonal
- Inflexible
- Inaccessible
- Expensive
Audience

• Resident or distance
• Computer capabilities
  – Hardware
  – Software
• Network connection
• Computer expertise
• Level of subject knowledge
Content

• Teaching philosophy
• Learning objectives
• Teaching sequence
Medium of Presentation

- Text
- Picture
- Sound
- Animation
- Video
Text Information

- Word processor document files
- HTML documents
- Adobe PDF files
Document Files

- Can be developed using word processing program
- Can be downloaded and modified
- Must have word processing program on user computer
- Use for forms - students can insert answers using a computer
Word Processing Document

• Homework assignment
  – Muscle structure
HTML Document

- Information accessed by internet
- Not intended to be printed out
- Need HTML tags
- Formatting
  - Static
  - Dynamic
Database Engine

CGI/JSP (executable for display)
  Common Gateway Interface/ Java Server Pages

HTML Document (Static)

CGI/JSP (executable for content management)

Web Server

Web Browser
Static Web page
Dynamic Text

- Information is placed in database
- Webpage programmed by retrieving data from database and assembling it into a webpage
- Editing occurs in database
- Bovine Myology data is handled this way
<table>
<thead>
<tr>
<th>Number</th>
<th>Muscle Name</th>
<th>Other Common Name</th>
<th>Group</th>
<th>Origin</th>
<th>Innervation</th>
<th>Action</th>
<th>Blood Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adductor</td>
<td></td>
<td>Pelvic</td>
<td></td>
<td>Iliohiatic or tibial and obturator nerves.</td>
<td>Adducts the limb and extends the hip. Rotates the femur inward.</td>
<td>Femoral, deep femoral, and obturator arteries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Description:**

(1) The posterior surface of the femur from the level of the third trochanter to the groove for the femoral vessels. (2) The medial ligament of.
<table>
<thead>
<tr>
<th><strong>Common Name</strong></th>
<th>Inside round</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group</strong></td>
<td>Pelvic</td>
</tr>
<tr>
<td><strong>Whole Sale Section</strong></td>
<td>Round</td>
</tr>
<tr>
<td><strong>Origin</strong></td>
<td>The ventral surface of the pubis and ischium, and the tendon of the gracilis.</td>
</tr>
<tr>
<td><strong>Insertion</strong></td>
<td>(1) The posterior surface of the femur from the level of the third trochanter to the groove for the femoral vessels; (2) the medial ligament of the stifle joint.</td>
</tr>
<tr>
<td><strong>Action</strong></td>
<td>Adducts the limb and extends the hip. Rotates the femur inward.</td>
</tr>
</tbody>
</table>
HTML Text Software

- Dreamweaver; Macromedia
  - www.macromedia.com
- Front Page; Microsoft
  - www.microsoft.com
- Go Live; Adobe
  - www.adobe.com
- Pagespinner; Optima Systems
  - www.optima-systems.com
Adobe Portable Document Format Files (PDF)

- Provides high quality print copy
- File size is smaller
  - Large documents can be put on the web
- Can be put on PDA devices
Example of PDF file

- EU Traceability rules
- Post Mortem Inspection
Photographs and Graphics

• **Format**
  – Continuous color i.e. photos use jpeg
  – Solid colors i.e. graphics use gif

• **Size for web pages**
  – about 60 kb per page
  – Same applies to most PowerPoint presentations
Photo Size & Quality

• The image size depends on what you want to use it for.
  – Print resolution should be at least 300-600 dpi.
  – Resolution for Web and CD content needs only to be 72 dpi.
Photo Editing

- Resize
- Cropping
- Light and color adjustments
- Labeling
- Touch up
Digital Camera

- Mega-pixels aren’t a concern if you are using pictures for the web
- Optics of the camera important
- Features that are useful:
  - Exposure control
  - Hot shoe
  - Time-lapse
  - Macro lens
  - Auto-focus
  - Storage capacity
  - Recycling time
  - Durable
  - Flash
  - Bracketing
Obtaining Images

- Scanning pictures or slides
- USDA photo library
- Be aware of Copyrights
Photo Editing Software

• Photoshop; Adobe Inc.
  – www.adobe.com

• Photo Shop Elements
  – Smaller version of Photoshop

• Fireworks; Macromedia
  – www.macromedia.com

• Paintshop Pro; Jasc Software
  – www.jasc.com

• Corel Draw Corel,Inc.
  – www.corel.com
Retouched photo

Complexus

10 inches
Pointers in Obtaining Good Photos

- Take best pictures possible
  - Traditional techniques apply
- Keep Originals
- Limit actual editing of image
Graphics and Drawings

- Use vector based drawing programs if possible
  - Can be resized
  - Easily adaptable to animation programs
  - Can be smaller in size
Vector vs. Pixel
Vector Illustration Software

- Illustrator; Adobe Inc.
  - www.adobe.com

- Freehand; Macromedia, Inc.
  - www.macromedia.com

- Corel Draw; Corel, Inc.
  - www.corel.com
Audio Editing

• Putting sound or narration into PowerPoint presentations
• Use MS Windows player
• Most sound editing programs have this function
Sound Editing

• Remove dead space
• Remove the umh’s and ahh’s
• Edit mispronounced words
• Produce Energy for the Cell
• Pyruvic Acid is the substrate
• Oxygen must be present
• Products are ATP, CO₂, and H₂O
Edited Version

- Produce Energy for the Cell
- Pyruvic Acid is the substrate
- Oxygen must be present
- Products are ATP, CO₂, and H₂O
Audio Editing Software

• Cool Edit 2000; Syntrillium, Inc.
  – www.syntrillium.com

• Sound Forge; Sonic Foundry, Inc.
  – www.sonicfoundry.com
PowerPoint Narration Tips

• Remove animations from slide
• Don’t embed sound into the PowerPoint presentation
• Use microphone head set
• Adjust sound quality
Animations
Planning & Animation

- Identify concept to teach
- Storyboard the concept
- Develop artwork for animation
- Obtain picture for time lapse
- Identify size of animation
Process Animation

- Detail steps or reactions
  - Structure of muscle
  - Contraction
  - Meat Emulsions
  - Color changes
  - Muscles in the sub primal
Muscle Structure
Contraction
Meat Emulsion
Color
Sub-primal Rotation
Scanning a Beef Loin
Time Lapse Animation

• Speed up process
  – Color change in meat
  – Thaw rigor
Thaw Rigor
Vector Animation Software

- **Flash; Macromedia, Inc.**
  - [www.macromedia.com](http://www.macromedia.com)
- **Live Motion; Adobe, Inc.**
  - [www.adobe.com](http://www.adobe.com)
Digital Video Editing

• Identify concept to be taught
• Storyboard the concept
• Output resolution
  – Web
  – CD
  – Video
Electrical Stimulation
Beef Carcass Splitting
Digital Video Editing Software

- Premiere; Adobe
  - www.adobe.com
- Final Cut Express; Apple
  - www.apple.com/finalcutexpress/
- Pinnacle Edition 5; Pinnacle Systems
  - www.pinnaclesys.com
3D Imaging

• Identify concept to be taught
• Storyboard the concept
• Develop 3D models
  – 3D Modeling
  – Scanning
• Output Resolution
  – Web
  – CD
  – Video
  – Print
Obtaining Images for 3D

• Slice sample and take individual pictures
• Use a CT scanner
• Model
Example

3D Image of Beef Carcass
3D Modeling and Animation Software

- Lightwave 3D; Newtek
  - www.lightwave.com
- Maya Alias; Wavefront
  - www.aliaswavefront.com
- Softimage; Avid
  - www.softimage.com
How are the Parts put together?
Course Ware Programs

- Blackboard
- Web CT
- Custom programs
Features Available

Bulletin board
E-mail
Chat room
Grade book
Glossary
Quiz program
Group page

Drop Box
Course Contents
Instructor Info
Announcements
GENERAL INFORMATION

MINIMUM COMPUTER REQUIREMENTS

You are using a Windows-compatible machine.
You've got Internet Explorer version 6.
Your browser has passed the browser test!

Browser Configuration: Netscape 4.7 or Internet Explorer 5.0 or 5.5
Word Processor
Internet Connection: 28.8K modem. A 56K modem is recommended.

Important Note: If you are using Netscape, be aware that resizing the window may 1) change the type font on the page, or 2) return you to the course home page. Reloading the page can return the original font, but be careful not to reload before you save any original work you have typed on the page. It is best not to resize your pages in Netscape while you are working in this course, especially if you are entering information on the page.
GENERAL DIRECTIONS

As you proceed through this course, you will find directions that are easy to follow. At each step, you will be told what to do next — what materials to study, what written assignments or projects to do, when to take an evaluation or examination, and how to submit your materials for grading.

Course Requirements

Five weeks is the minimum time in which a course may be completed. The five week minimum time requirement begins when your first graded assessment is received by the College Independent Study Program (CIS). If you proceed through the course too quickly, you will not have the opportunity to benefit from the comments made when your assignments are returned to you.

You will be expected to spend about 60 to 80 minutes a day on this course for a period of one semester — about the same amount of time college students generally spend on each of their courses.

APPROPRIATE USE POLICIES

Access to the technology utilized by the web-based courses offered at the College Independent Study imposes certain responsibilities and obligations. Appropriate use incorporates ethical and honest behavior and demonstrates respect for physical and intellectual property, system security protocols, and individuals' rights to privacy and freedom from intimidation, harassment, and unwarranted annoyance.

- Use Internet resources for authorized purposes only.
  I will respect the work and creativity of the authors of materials that I will use on the Internet. Therefore, I will not copy files from the Internet for any use other than my personal use, unless the webmaster explicitly states that the page may be copied indiscriminately.

- Use only legal versions of copyrighted software in full compliance with licensing agreements.
  I will respect the work and creativity of software developers and not
Introduction of Meat Science

There are 6 presentations in this topic. Use the links below to view them along with their transcripts.

- Presentations
  - Introduction of Meat Science
  - What is Meat?
  - Pork and Beef Production: Livestock in the U.S.A. Industry

Introduction of Meat Science

Hello everyone, I am Steve Jones, and I would like to introduce myself. I am the instructor for the Animal Science 210 course. Today we will take a little bit about Animal Products, open some time talking about the history of animal products, what is meat, and some of the consumption trends that we have seen for the past fifty years.

Food for Humankind

As we look at food for humankind, we see two of the major concerns of man and women has been to provide food and shelter. As we look through history at the amount of time and effort that was directed to those things, it has been greatly reduced. We have been able to assure a food supply and that other times could be spent on such things as the arts, sciences, and technology. So we can see that the advances that we have made in the meat industry have also contributed to some of the other advances that we have seen in society.

Learning Objectives

The Learning Objectives for this lesson will be:

1. Define meat
Quiz 1 - Introduction and the Economic Importance of Animal Products

1. Which of the following animals do people use for meat purposes?
   - horse
   - goat
   - rabbit
   - buffalo
   - all of the above

2. Consumption of meat products is usually a function of:
   - price
   - availability
   - nutrient value
   - a and b
   - all of the above

3. Another term for "When packing plants moved from locations near water sources nearer to the point of production" is
   - centralization
   - scattering like ducks
   - decentralization
   - closing camp

4. The following can be considered to be meat except:
   - beef
Special Thanks

• The DEAL lab, University of Nebraska
• Extended Education University of Nebraska
• National Cattlemen’s Beef Association
• National Pork Board
Questions