This section of the notebook includes resources that can be used to prepare for and deliver presentations described in previous sections. These supplies include

- **Evaluation Instruments.** One of two evaluations can be selected for use with participants at the end of the session.

- **Projected Visual Templates.** Overhead transparency templates with slides are included on the following pages and are available online at http://www.uw.edu/doit/MathSci/index_ppt.html.

- **Videos.** DVDs are included in these materials and streaming videos are available online at http://www.uw.edu/doit/Videos/.

- **Handouts.** Photocopy-ready handouts are included in these materials and also online at http://www.uw.edu/doit/Brochures/publist.html.
In this section, you will find two separate evaluation instruments that can be used to gather participant feedback from your presentation.
Presentation Evaluation

Part One: Help us know what you learned as a result of this presentation. Please indicate your agreement or disagreement with these statements where 1= Strongly Disagree, 5= Strongly Agree, and N/A = Not Applicable.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am better able to find resources at my school to accommodate students with disabilities.</td>
<td>1 2 3 4 5</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>I gained knowledge about legal obligations relating to students with disabilities.</td>
<td>1 2 3 4 5</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>I gained knowledge about specific accommodations for students with disabilities.</td>
<td>1 2 3 4 5</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>I gained knowledge about technology available to support students with disabilities.</td>
<td>1 2 3 4 5</td>
<td></td>
<td>N/A</td>
</tr>
</tbody>
</table>

Please answer the following questions with responses based on today’s presentation (as opposed to what you already knew). Describe one thing you learned today about each of the following:

1. Legal issues affecting students with disabilities:

2. Campus services for students with disabilities:

3. Accommodations that can be used for students with disabilities in classes or labs:

Describe additional information you would like to have in order to more fully include students with disabilities in your courses.
Part Two: Please provide input to help us improve our professional development offerings. Please indicate your agreement or disagreement where 1 = Strongly Disagree and 5 = Strongly Agree with the following statements. N/A = Not Applicable.

- The facility for this presentation was appropriate. 1 2 3 4 5 N/A
- The presenter(s) was (were) well prepared. 1 2 3 4 5 N/A
- Overall, the information presented was useful. 1 2 3 4 5 N/A
- The pace of the presentation was appropriate. 1 2 3 4 5 N/A
- The question and answer time was useful. 1 2 3 4 5 N/A
- The handouts will be useful. 1 2 3 4 5 N/A

1. Which part of the presentation/material was the most useful to you and why?

2. Describe what could make the presentation more useful.

3. To whom would you recommend a workshop on this topic (check all that apply)?
   ____ Educators
   ____ Teaching Assistants
   ____ Administrators
   ____ Other (please specify): __________________________________________

4. The length of the presentation was: about right ____ too short ____ too long ____
   The amount of material was: about right ____ not enough ____ too much ____

Part Three: Please tell us about yourself:

   ____ Male          ____ Female
   ____ Educator      ____ Administrator
   ____ Teaching Assistant  ____ Other

Have you ever provided an accommodation to a student with a disability? Yes__ No___
If yes, please give an example:
Presentation Evaluation

Please indicate your agreement or disagreement with these statements where 1= Strongly Disagree, 5= Strongly Agree, and N/A= Not Applicable.

- I am better able to find resources on my campus to accommodate students with disabilities.  
  Strongly Disagree 1 2 3 4 5 N/A

- I gained knowledge about legal obligations relating to students with disabilities.  
  Strongly Disagree 1 2 3 4 5 N/A

- I gained knowledge about specific accommodations for students with disabilities.  
  Strongly Disagree 1 2 3 4 5 N/A

- I gained knowledge about technology available to support students with disabilities.  
  Strongly Disagree 1 2 3 4 5 N/A

- The presenter(s) was (were) well prepared.  
  Strongly Disagree 1 2 3 4 5 N/A

- Overall, the information presented was useful.  
  Strongly Disagree 1 2 3 4 5 N/A

- The handouts will be useful.  
  Strongly Disagree 1 2 3 4 5 N/A

1. The length of the presentation was:  about right ____ too short ____ too long ____

2. The amount of material was:  about right ____ not enough ____ too much ____

3. Please tell us about yourself:  
   Male    Female  
   Educator  Administrator  
   Teaching Assistant  Other

Please make specific comments about this presentation on the back of this form.
In this section, you will find overhead projection templates that can be used to create overhead visuals for your presentations. An electronic copy of these templates can be found at http://www.uw.edu/doit/MathSci/index_ppt.html.
Teaching Science and Math to Students with Disabilities

Science and Math Access Objectives

1. Discuss challenges students with disabilities face in gaining and demonstrating knowledge in science and mathematics.

2. List examples of accommodations for students with various types of disabilities in science and mathematics courses.

3. Describe a process for selecting appropriate accommodations.
Challenges for Students with Disabilities:

- gaining knowledge
- demonstrating knowledge
Accommodation Strategies

Factors Influencing the Increased Participation of Students with Disabilities in Postsecondary Education:

- survival rate
- technology
- K-12 special education
- awareness
Accommodation Strategies Objectives

- Learn about the rights, responsibilities, contributions, and needs of students with disabilities.
- Summarize institutional and departmental rights and responsibilities for ensuring equal opportunities.
- List strategies for working with students who have disabilities.
- Describe actions that we can take to ensure that students with disabilities have education opportunities equal to those of their nondisabled peers.
- Describe resources.

“Person with a disability” is any person who:

- has a physical or mental impairment that substantially limits one or more major life activities, including walking, seeing, hearing, speaking, breathing, learning, and working;
- has a record of such an impairment; or
- is regarded as having such an impairment.
Examples of Disabilities

Low Vision

Blindness

Hearing Impairments

Mobility Impairments

Mental Health / Psychiatric Impairments

Health Impairments

Learning Disabilities

Accommodations for Low Vision

- Seating near front of class
- Good lighting
- Large-print books, handouts, signs, and equipment labels
- TV monitor connected to microscope to enlarge images
- Assignments in electronic format
- Software to enlarge screen images
- Software to adjust screen colors
Accommodations for Blindness

- Printed materials in electronic format
- Describe visual aids
- Audio, Braille, or electronic notes and texts
- Raised-line drawings and tactile models of graphic materials
- Braille lab signs, equipment labels; auditory lab warning signals
- Adaptive equipment (e.g., talking thermometers and calculators; tactile timers)
- Computer with optical character reader, voice output, Braille embosser
- Increased time on tests

Accommodations for Specific Learning Disabilities

- Note taker and/or audio recorded class sessions
- Captioned videos
- Textbooks in audio formats
- Visual, aural, and tactile instructional demonstrations
Accommodations for Specific Learning Disabilities, continued

- Course and lecture outlines
- Assignments given in advance
- Computer with speech output, spelling checker, and grammar checker
- Extra exam time, quiet testing arrangements

Accommodations for Hearing Impairments

- Interpreter, real-time captioning, FM system, note taker
- Captioned videos
- Email
- Visual aids; visual warning system for lab emergencies
- Written assignments, lab instructions, demonstration summaries
- Repeat questions and statements from other students during class
Accommodations for Mobility Impairments

- Note taker/lab assistant; group lab assignments
- Classrooms, labs, field trips in accessible locations
- Adjustable table; equipment located within reach
- Extra exam time, alternative testing arrangements
- Access to online research resources
- Class assignments and materials in electronic format
- Computer with special input device (e.g., speech input, Morse Code, alternative keyboards)

Accommodations for Health Impairments

- Flexible attendance requirements
- Extra exam time, alternate testing arrangements
- Note takers and/or audio recorded class sessions
- Assignments in electronic format
- Email
- Internet-accessible services and/or resources
Accommodations for Speech Impairments

- Listen carefully to what the person is saying; if you don’t understand, ask the student to repeat.
- Relax and take as much time as necessary to communicate.
- Ask questions that require short answers or a nod of the head when appropriate.
- Written communication
- Email

Accommodations for Psychiatric Impairments

- Audio recorder, note taker
- Preferential seating near door
- Tests, assignments in alternate formats
- Extended time for taking tests
- Separate, quiet room for testing
- Review academic and behavioral expectations in regular meetings with the student.
General Suggestions for Making Classes Accessible

- Add a statement to the syllabus inviting students who have disabilities to discuss their accommodation needs.
- Select materials early.
- Talk with student about accommodation needs.
- Have policies and procedures in place.
- Make sure facility is accessible.
- Provide materials in electronic formats.
- Provide clear signage in large print.
- Use alternative methods of administering tests and testing comprehension of a subject.
- Use campus disabled student services as a resource.

Four-Step Accommodation Model

1. What does the task or assignment require?
2. What physical, sensory, and cognitive skills are required?
3. What components require accommodation?
4. What accommodation options exist?
Four-Step Model

1. What does the task or assignment require?
2. What physical, sensory, and cognitive skills are needed?
3. What components of the task require accommodation?
4. What accommodation options exist?

<table>
<thead>
<tr>
<th>Physical Issues</th>
<th>Sensory Issues</th>
<th>Cognitive Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Challenges</td>
<td>Sensory Challenges</td>
<td>Cognitive Challenges</td>
</tr>
<tr>
<td>1. lift/carry</td>
<td>1. vision</td>
<td>1. short-term memory</td>
</tr>
<tr>
<td>2. stamina/endurance</td>
<td>2. hearing</td>
<td>2. long-term memory</td>
</tr>
<tr>
<td>3. push/pull</td>
<td>3. touch</td>
<td>3. task complexity</td>
</tr>
<tr>
<td>4. kneel/squat</td>
<td>4. smell</td>
<td>4. reading</td>
</tr>
<tr>
<td>5. reach</td>
<td>5. taste</td>
<td>5. writing</td>
</tr>
<tr>
<td>6. repetitive tasks</td>
<td>6. oral communication</td>
<td>6. spelling</td>
</tr>
<tr>
<td>7. fine motor: pinch/grasp</td>
<td>7. temperature</td>
<td>7. string of numbers (math)</td>
</tr>
<tr>
<td>8. fine motor: manipulate/maneuver</td>
<td>8. fumes</td>
<td>8. paying attention</td>
</tr>
<tr>
<td>9. gross motor</td>
<td>9. external stimuli</td>
<td>9. visual, auditory, or kinesthetic learner</td>
</tr>
<tr>
<td>10. sit in chair</td>
<td>10. lighting</td>
<td>10. self-esteem/advocacy issues</td>
</tr>
<tr>
<td>11. walk/stand</td>
<td>11. other</td>
<td>11. behavior issues/acting out</td>
</tr>
<tr>
<td>12. balance</td>
<td></td>
<td>12. other</td>
</tr>
<tr>
<td>13. bend/twist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. stoop/crouch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Physical, Sensory, and Cognitive Issues and Challenges
<table>
<thead>
<tr>
<th>Physical Challenges</th>
<th>Accommodations Needed</th>
<th>Options and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Challenges</td>
<td>Accommodations Needed</td>
<td>Options and Resources</td>
</tr>
<tr>
<td>Cognitive Challenges</td>
<td>Accommodations Needed</td>
<td>Options and Resources</td>
</tr>
</tbody>
</table>

**Task / Assignment:**

**Narrative Regarding Student and Accommodation Issues:**

**Environment:** (fumes, odors, dust, temperature, noise, group work)

**Equipment:** (lab equipment, computer, manipulatives)
Universal Design of Instruction Objectives

1. Discuss the principles of universal design.

2. Apply principles of universal design of instruction to meet a wide range of student learning needs.

3. Explain the difference between employing universal design principles to maximize access and providing academic accommodations for students with disabilities.

Diversity in Postsecondary Institutions

- Ethnic/racial minorities
- English as a second language
- Different learning styles
- People with disabilities
Universal Design =

“The design of products and environments to be usable by all people, without the need for adaptation or specialized design.”

Center for Universal Design at North Carolina State University

Principles of Universal Design

- Equitable use
- Flexibility in use
- Simple and intuitive use
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and shape for approach use
Universal Design of Instruction Examples

- Create an environment that respects and values diversity. Put a statement on your syllabus inviting students to meet with you to discuss disability-related accommodations and other learning needs.

- Ensure that all classrooms labs and fieldwork are in locations accessible to individuals with a wide range of physical abilities and disabilities.

- Use multiple modes to deliver content (including lecture, discussion, hands-on activities, Internet-based interaction, and fieldwork).

- Provide printed or web-based materials, which summarize content that is delivered orally.

- Face the class and speak clearly.

- Use captioned videos.

Universal Design of Instruction Examples, continued

- Provide printed materials in electronic format.

- Use accessible web pages (text descriptions of graphics).

- Provide printed materials early so that students can prepare to access the materials in alternate formats.

- Create printed and web-based materials in simple, consistent formats.

- Provide effective prompting during an activity and feedback after the assignment is completed.

- Provide multiple ways for students to demonstrate knowledge.

- Make sure equipment and activities minimize sustained physical effort.
Making Classroom Activities Accessible to Everyone

- Class lectures
- Classroom discussions
- Internet resources
- Videos
- Course handouts
- Computer and science labs
- Field experiences

Procedures and Outcomes

Instructional Procedures:

1. Students will use... to acquire the course content.

2. I will use... to present course content.

Instructional Content:

1. Students will describe...

2. Students will be able to list...

3. Students will demonstrate...
Measuring Instructional Content Versus Procedures

1. Evaluation Content:
   Students will demonstrate their understanding of...

2. Testing Procedure:
   Students will demonstrate their understanding by...

What barriers to the activity exist for students with the disability your group was assigned?

What accommodation options exist to overcome those barriers?
Fingerprint Accommodations

Visual Impairments
- Position, lighting, & seating needs of student
- Large print, Braille, or electronic handouts and worksheets
- Scanner to create large images
- Clear description of visual aids
- Tactile accommodations

Hearing Impairments
- Sign language interpreter or FM system
- Visual aids
- Clear written directions
- Position and seating (needs to see the instructor/demonstration)
- Instructor communication

Fingerprint Accommodations, continued

Mobility Impairments
- Accessible work space, adjustable tables
- Work with partner

Learning disabilities/ attention deficit disorders
- Multi-modal directions
- Minimize distractions when possible
- Break directions and activity into chunks
M&Ms Ratio Accommodations

Visual Impairments
- Position, lighting, and seating needs of student
- Large print, Braille, or electronic handouts and worksheets
- Talking calculator
- Magnifying glass
- Alternative manipulatives

Hearing Impairments
- Sign language interpreter or FM system
- Visual aids
- Clear written directions
- Position and seating (needs to see the instructor/demonstration)
- Instructor communication

Mobility Impairments
- Computer-based accommodations
- Larger manipulatives
- Tray to hold manipulatives
- Work with partner

Learning Disabilities/Attention Deficit Disorders
- Multi-modal directions
- Computer-based accommodations
- Reorganize format of documents
- Minimize distractions when possible
- Talking calculator
- Break directions and activity into chunks
Surface Area and Volume Accommodations

Visual Impairments
- Position, lighting, and seating needs of student
- Large print, Braille, or electronic handouts and worksheets
- Talking calculator
- Magnifying glass
- Alternative manipulatives

Hearing Impairments
- Sign language interpreter or FM system
- Visual aids
- Clear written directions
- Position and seating (needs to see the instructor/demonstration)

Mobility Impairments
- Computer-based accommodations
- Larger manipulatives
- Tray to hold manipulatives
- Work with partner

Learning Disabilities/Attention Deficit Disorders
- Multi-modal directions
- Computer-based accommodations
- Reorganize format of documents
- Minimize distractions when possible
- Talking calculator
- Break directions and activity into chunks
Information Access

Information Access Objectives

1. Describe ways that information is presented in postsecondary institutions.

2. Discuss the challenges each mode of information delivery creates for people with different types of disabilities.

3. List solutions to the barriers students with disabilities typically face when obtaining information in academic settings.
Academic Context of Information Access

- Classroom work
- Labs
- Homework
- Library
- Web resources
- Distance learning

Information Access can be a Challenge For People with:

- Visual impairments
- Hearing impairments
- Mobility impairments
- Speech impairments
- Health impairments
- English as a second language
- Alternative learning styles
Section 504 of the Rehabilitation Act of 1973

“No otherwise qualified individual with a disability shall, solely by reason of his/her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity of a public entity.”

Access Challenges

- Spoken word
- Printed word
- Video/televised information
- Audio recorded information
- Computer-based information
### Access Issues and Solutions

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>access to computers</td>
<td>adaptive technology</td>
</tr>
<tr>
<td>access to electronic resources</td>
<td>universal design principles</td>
</tr>
</tbody>
</table>

### Making Computing Labs Accessible to Everyone
Making Computer Labs Accessible to Everyone Objectives

1. Describe the legal rights of students with disabilities as they relate to computer access.

2. Tell how universal design principles can be used to develop computer services that are accessible to all students.

3. Discuss steps to be taken to ensure that students with disabilities have access to campus computer labs.

Make Sure Computer Lab Users can:

- get to the facility and maneuver within it;
- access materials and electronic resources; and
- make use of equipment and software.
Adaptive Technology Considerations

- Adjustable tables
- Large-print key labels
- Screen-enlargement software
- Large monitors
- Speech output
- Braille conversion
- Trackballs, wrist rests, and keyguards
- Ergonomic keyboards

Access to Computers for Students with Disabilities
Access to Computers Objectives

1. Describe the legal rights of students with disabilities as they relate to computer access.

2. Summarize the issues, needs, and concerns of people with disabilities in accessing electronic resources.

3. Describe common types of adaptive technology for students with disabilities.

4. Discuss strategies to plan and implement adaptive technology capabilities for campus computer labs/workstations.

Computers Assist People with:

- Low vision
- Blindness
- Hearing impairments
- Speech impairments
- Specific learning disabilities
- Mobility impairments
- Health impairments
Low Vision

- large-print signs, handouts, labels
- good lighting
- large-print key labels
- large monitors
- software to enlarge screen images
- software to adjust screen colors

Blindness

- Brailled and audio-recorded materials
- Braille labels
- computers with voice output
- Braille screen displays
- scanners and optical-character recognition
- Braille printers
- Internet-accessible services/resources
Hearing and Speech Impairments

- computers with visual output
- email
- speech synthesizers

Learning Disabilities

- accessible technology provides multi-sensory experiences
- speech input/output
- spelling checkers, thesauruses, and grammar checkers
- word-prediction software
- large-print displays and alternative colors on the screen
Mobility Impairments

- adjustable tables
- keyboard modifications
- keyboard guards and layouts
- alternative keyboards and mice
- Internet-accessible services/resources

Health Impairments

- email
- Internet-accessible services/resources
Adaptive Technology

- hardware/software
- easy/difficult to implement
- easy/difficult to use
- inexpensive/expensive
- generic/unique
- stand-alone/networked

Getting Started!

- adjustable tables
- large-print key labels
- screen-enlargement software
- large monitors
- speech output
- Braille conversion software and printer
- trackballs, wrist rests, keyguards
Universal Design of Web Pages

Universal Design of Web Pages Objectives

1. List potential barriers to accessing information on web pages for students with disabilities.

2. Describe the institution’s legal responsibility to ensure access to information presented on web pages.

3. Describe universal design guidelines for developing accessible web pages.
Some Internet Visitors:

- cannot see graphics.
- cannot hear audio.
- have difficulty with unorganized sites.
- use older equipment with slow connections.

ADA and the Internet

“No covered entities that use the Internet for communications regarding their programs, goods, or services, must be prepared to offer those communications through accessible means as well.”

—United States Department of Justice (ADA Accessibility, 1997)
Provide Multiple Means of:

- representation
- expression
- engagement

“The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect.”

—Tim Berners-Lee, World Wide Web Consortium
Web Page Development Accessibility Options:

1. Avoid inaccessible data types and features.
2. Create alternative methods/formats.

Example of a Web Accessibility Statement

“The DO-IT pages form a living document and are regularly updated. We strive to make them universally accessible. You will notice that we minimize the use of graphics and photos, and provide descriptions of them when they are included. Video clips are open captioned, providing access to users who can’t hear the audio. Suggestions for increasing accessibility of these pages are welcome.”
Test Your Web Pages:

- with different operating systems and monitors.
- with different browsers and with audio and graphics-loading features turned off.
- with a text browser.
- with an accessibility testing program (e.g., Bobby).
- by accessing the keyboard alone.

Policy Guidelines

- Disseminate information
- Train
- Support
- Enforce or reward
- Evaluate and revise
Universal Design of Distance Learning

Universal Design of Distance Learning Objectives

1. List potential barriers to distance learning courses for students with disabilities.

2. Describe educators, staff, and institutional roles and responsibilities for ensuring equal access to distance learning courses.

3. Discuss universal design guidelines for developing accessible distance learning courses.
Accessibility Indicators for Students

1. The distance learning home page is accessible to individuals with disabilities (e.g., it adheres to Section 508, World Wide Web Consortium, or institutional accessible-design guidelines/standards).

2. A statement about the distance learning program’s commitment to accessible design for all potential students, including those with disabilities, is included prominently in appropriate publications and websites along with contact information for reporting inaccessible design features.

Accessibility Indicators for Students, continued

3. A statement about how distance learning students with disabilities can request accommodations is included in appropriate publications and web pages.

4. A statement about how people can obtain alternate formats of printed materials is included in publications.

5. The online and other course materials of distance learning courses are accessible to individuals with disabilities.
### Accessibility Indicators for Distance Learning Designers

6. Publications and web pages for distance learning course designers include:
   a. a statement of the program’s commitment to accessibility,
   b. guidelines/standards regarding accessibility, and
   c. resources.

7. Accessibility issues are covered in regular course designer training.

### Accessibility Indicators for Distance Learning Instructors

8. Publications and web pages for distance learning instructors include:
   a. a statement of the distance learning program’s commitment to accessibility,
   b. guidelines/standards regarding accessibility, and
   c. resources.

9. Accessibility issues are covered in training sessions for instructors.
Accessibility Indicators for Program Evaluators

10. A system is in place to monitor the accessibility of courses, and, based on this evaluation, the program takes actions to improve the accessibility of specific courses as well as update information and training given to potential students, current students, course designers, and instructors.

Distance Learning Tools

- Email
- Real-time “chat”
- Web pages
- Teleconferencing
- Printed materials
- Videos