

UNIVERSAL DESIGN

In Higher Education

Presenters: Gary Greco, Rory Natividad, Deborah Shepley



OUTCOMES

- Define Universal Design (UD), especially in Higher Education
- Provide examples of how our institution can implement UD as an effort to create the greatest access for the largest diversity of people.
- Review current practices in our environment that affect faculty, staff, students and community and provide examples of implementation
- Spaces such as Academic areas, student service, laboratories/computer labs and physical spaces
- Look at what we do at ECC
- Provide some recommendations
- Resources and Handouts



THE GOAL/UD AND PROACTIVE PRACTICES

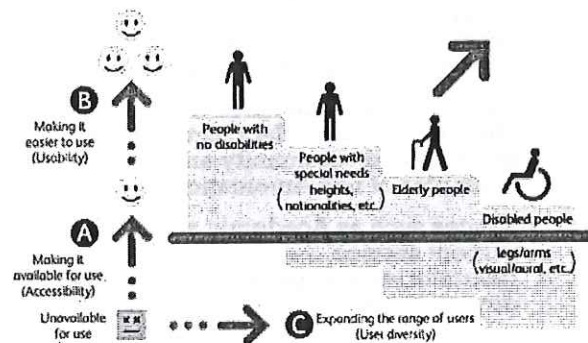
A shift from designed or evaluating our environment is changing. The traditional or existing facility was created for the "average" user.

According to the Center for Universal Design, Universal Design is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design".

- Make sure everyone:
 - Feels welcome
 - Can get to facilities and maneuver within them
 - Is able to fully benefit from resources and courses
 - Can make use of equipment and software

WHY UNIVERSAL DESIGN

- An increasing number of people higher education. The group of people is becoming more diverse with respects to gender, race, ethnicity, learning style, age, disability , and other characteristics.
- Universal Design can be defined as the design of instruction of products and environments to be usable by all students. Students come from a wide variety of diverse learning styles. Implementing accessibility for all students without the need for adaptation or specialized design is critical.

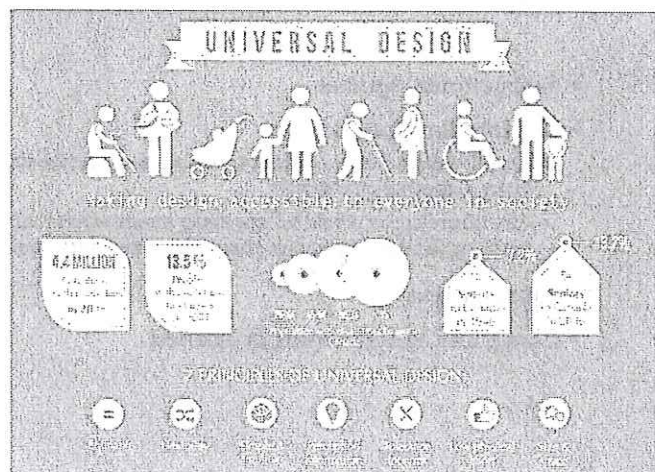


WHAT DOES UNIVERSAL DESIGN MEAN FOR AN EDUCATIONAL FACILITY?

- Rather than designing your facility and services for the average user, you design them for people with a broad range of abilities, ages, reading levels, learning styles, languages, cultures, and other characteristics.
- Not just disabilities driven so awareness of characteristics that could limits someone's ability to access the space.
- These people could be short, tall, poor readers, left-handed, or speak a different language. Preparing your campus to be accessible to them will make it more usable by everyone and minimize the need for special accommodations.

UNIVERSAL DESIGN PRINCIPLES

- Equitable Use
- Flexible Use
- Simple and intuitive
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and space for approach and use



THE PROCESS FOR UNIVERSAL DESIGN

- *Identify the space* - Consider the purpose of the space, location, dimensions, budget, and other issues that affect design.
- *Define the universe* - Describe the overall population and then consider the diverse characteristics of potential members of the population who might use the space
- *Involve consumers*. Consider and involve people with diverse characteristics in all phases of the development, implementation, and evaluation of the space.
- *Adopt guidelines or standards* - Review research and practice to identify the most appropriate practices for the design of the type of space identified
- *Apply guidelines or standards* - Apply universal design strategies in concert with other best practices identified
- *Plan for accommodations* - Identify processes to address accommodation requests by individuals for whom the design of the space does not automatically provide access
- *Train and support*. Tailor and deliver ongoing training and support to staff who manage the physical space. Share institutional goals
- *Evaluate* - Provide ways for ongoing input to occur

AREAS OF FOCUS IN HIGHER EDUCATION

- Instructional Spaces
- Student Service Spaces
 - Do elevators have auditory, visual, and tactile signals and are elevator control accessible from a seated position?
 - Are there quiet work or meeting areas where noise and other distractions are minimized and/or facilities rules in place that minimize noise?
- Physical Spaces
- Computer and Laboratory Spaces

STUDENT SERVICE SPACES

- Always keep in mind that your student and visitors will have different levels of ability and disability. Seek to provide the greatest access to all.
- Guidelines and Examples
 - Planning, Policies, and Evaluation
 - Physical Environments and Products
 - Staff
 - Information Resources and Technology
 - Events

INSTRUCTIONAL SPACES

- Planning, Policies and Evaluation - Consider diversity issues as you plan and/or evaluate your facilities and programs.
- Facilities and Environment - Ensure physical access, comfort and safety within an environment that is welcoming to all.
- Support Services and Staff - Provide professional development to support staff in their service of this diverse group.
- Informational Resources – Ensure that departmental publications and website welcome a diverse group and that information is accessible to everyone.
- Courses and Faculty – Ensure that faculty members deliver courses that are accessible to all students and that accommodations are provided in a timely manner.

EXAMPLES OF PLANNING, POLICIES AND EVALUATION

- Parking accessibility close to buildings
- Wheelchair-accessible classrooms
- Classrooms where seating arrangements are not in traditional aisles but in semi-circles
- Wheelchair-accessible restrooms with well marked signs
- Parts of counters and desks in student classrooms at a height accessible from a seated position.
- Aisles being kept wide and clear of obstructions for the safety of users who have mobility or visual impairments
- Adequate lighting
- Tickerboard or televised announcements in all classrooms for emergency broadcasting in addition to phones, to be able to provide a visual and audio methods

EXAMPLES OF FACILITIES AND ENVIRONMENT

- Are there parking areas, pathways, and entrances to departmental buildings wheelchair-accessible?
- Are all levels of departmental facilities connected via wheelchair-accessible routes of travel? Are accessible routes of travel easy to find?
- Are there ample high-contrast, large-print directional signs to and throughout departmental labs, administrative offices, classrooms, and other facilities? Is Braille signage available when appropriate?
- Do elevators have auditory, visual, and tactile signals and are elevator controls accessible from a seated position?
- Are wheelchair-accessible restrooms with well-marked signs available?
- Are parts of counters and desks in student service areas at a height accessible from a seated position?

OTHER AREAS OF EXAMPLES

- Are the staff/faculty that provide support trained and know how to respond for requests for disability-related accommodations, i.e. sign language interpreters?
- Informational Recourses - Ensuring 508 compliance for all electronic and information technology. Working with ITS to ensure institutional responsibility and consistency in that all web based materials are 508 compliant. Faculty and Deans work together with ITS to ensure appropriate compliance on all web-based information.
- Courses and Faculty – Provide multiple means to engage learners. Present content in multiple ways. Allow recording, diagrams, pictures, etc. Allow students to provide feedback.

LABORATORIES/ COMPUTER LABS - GARY

- Fixed elements
 - versatility for height
 - ergonomic health and safety features for all chairs and desks within the la
- All monitors having head set features
 - Software programs to read documents back to the student, i.e. Read Write Gold,
 - Jaw, Audio Sonocet, Screenreader, Dragon Naturally Speaking
 - Accessibility features up front with easy access to adjust settings.
 - Aisle space wide to accommodate wheelchairs
- Science Labs
 - All labs must have shelving space and height accessible.
 - Allowing for larger expandable personal space for not only wheelchairs, but an individual requiring an in class aide, or a sign language interpreter.

PHYSICAL SPACES

8 ELEMENTS OF UNIVERSAL DESIGN



Body



Wellness



Comfort



Contextual Appropriateness



Awareness



Personalization



Understanding



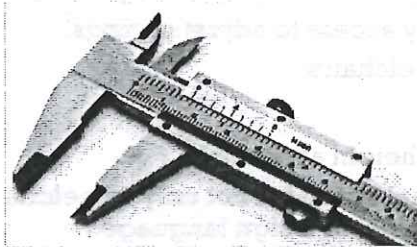
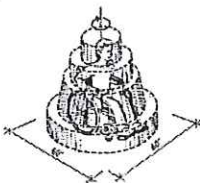
Social Integration

Gensler

Body Fit



- Accommodates a wide range of body sizes and abilities
- Supports various sizes and functions of the body
- Addresses differences in space clearances needed to accomplish tasks, including space for assistive devices
- Supports differences in fields of view



Accessibility is measured in inches, so attention to detail can make the difference between access and injuring someone

Gensler

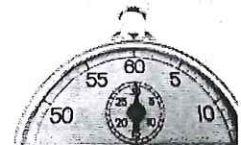
Comfort



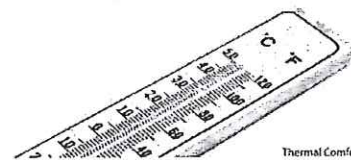
- Supports desirable limits of body function and perception
- Addresses a user's ability to exert initial force, repetitive motion, and/or stamina
- Considers reaction and response time
- Supports maintenance of thermal equilibrium



Initial Force Applied



Response Time

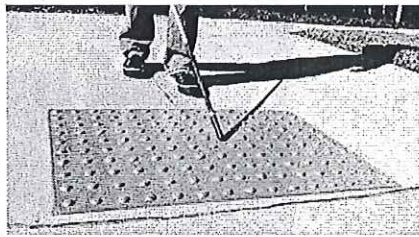
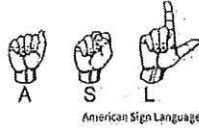


Thermal Comfort

Awareness



- Addresses differences in perceptual abilities
- Provides fail-safe features to protect against errors and mistakes
- Supports compatibility with assistive devices (e.g. hearing aids, white canes)
- Addresses the desired level of sound compared to the level of background noise

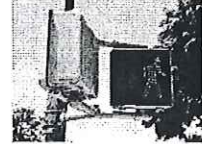


Gensler

Understanding



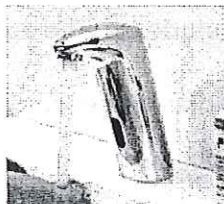
- Addresses complexity in operations or information
- Prioritizes information needed for implementation of actions
- Communicates safety and risk features
- Focuses on literacy and language skills



Wellness



- Provides proper hygiene in areas associated with risk of contamination
- Provides for rapid assistance in an emergency; protection from safety/security risk
- Supports choices for active and healthy living
- Protects from environmental hazards

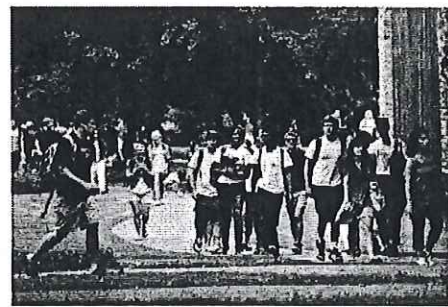







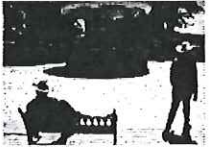


Gensler

Social Integration



- Equally accessible by everyone
- Individual's use of a building shall be the same (e.g. providing accessible entries to buildings)
- Shall not isolate or stigmatize any user; supports cultural attitudes and values
- Shall not privilege one group over another



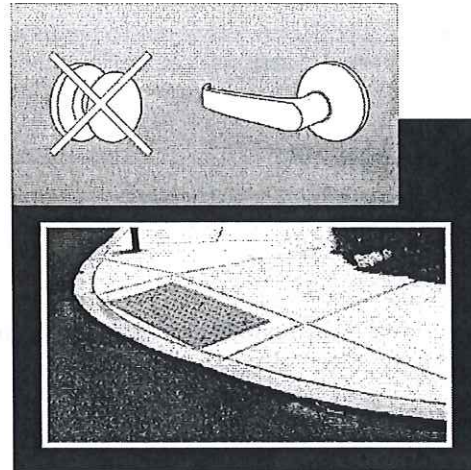
Personalization	Contextual Appropriateness
 <ul style="list-style-type: none"> • Supports the provision of choices and alternatives • Addresses user control over the environment • Supports user independence to minimize inconvenience • Control over exposure and personal information   <p data-bbox="207 940 289 961">Gensler</p> <p data-bbox="651 940 776 961">Choices and Alternatives</p>	 <ul style="list-style-type: none"> • Supports valued traditions and culturally based interpretations • Fits within and/or improves upon the local physical context • Acknowledges diversity and ensures usability by all • Provides adequate space necessary to enable equal use   <p data-bbox="1365 730 1430 751">Open Space</p>  <p data-bbox="1003 940 1084 961">Cultural Context</p>  <p data-bbox="1344 940 1430 961">Physical Context</p>

PROMISING PRACTICES IN UD

- In construction: provide examples
 - Entrances and exits have clear walkways wide enough for wheelchairs with no center postings. Sliding doors and large hall space
 - Pathways, landscaping (ramping systems in a garden format for more than ground level)
 - Adequate lighting
 - Elevator systems that can function independently
- Online learning and website applications
 - 508 compliance.
 - captioning of all video materials
 - utilization of software to read back to students who are low vision or blind
- Faculty development and collaboration
 - Professional development on various disabilities and sensitivity training, i.e. immersion programs
 - Purposeful opportunities to validate what is working and areas of opportunity for opportunities.

WHAT DOES ECC DO CURRENTLY?

- New construction process with experts providing input on UD
- The special resource center with classroom accommodations
- Staff ergonomic assessments and implementation by the office of Health and Safety



RECOMMENDATIONS FOR THE FUTURE

- Incorporate Faculty and Staff development on Universal Design
- Look for increased opportunities for Universal Design during construction with a guiding principle for the importance in the future
- Improve our classroom and online close captioning implementation

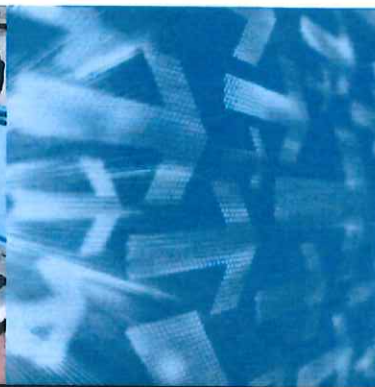
RESOURCES

Develop and collect resources to help educators apply universal design to all aspects of the educational experience:

- DO-IT (Disabilities, Opportunities, Internetworking, and Technology)
- UD of Academic Departments
- Student Services
- Physical Spaces
- <https://www.slideshare.net/hkramer99/integrating-universal-design-content-into-university-curriculum>



Examples of Universal Design in Education



In Instruction

- A statement on a syllabus that invites students to meet with the instructor to discuss learning needs
- Multiple delivery methods that motivate and engage all learners
- Flexible curriculum that is accessible to all learners
- Examples that appeal to students with a variety of characteristics with respect to race, ethnicity, gender, age, ability, and interest
- Regular, accessible, and effective interactions between students and the instructor
- Allowing students to turn in parts of a large project for feedback before the final project is due
- Class outlines and notes that are on an accessible website
- Assessing student learning using multiple methods
- Faculty awareness of processes and resources for disability-related accommodations

In Services

- Service counters that are at heights accessible from both a seated and standing position
- Staff who are aware of resources and procedures for providing disability-related accommodations
- Pictures in publications and on websites that include people with diverse characteristics with respect to race, ethnicity, gender, age, ability, and interest
- A statement in publications about how to request special assistance, such as a disability-related accommodation
- A student service website that adheres to accessibility standards (e.g., Section 508 Standards for those of the U.S. federal government)
- Printed materials that are easy to reach from a variety of heights and without furniture blocking access
- Printed publications that are available in alternate formats (e.g., electronic, large print, Braille)

In Information Technology

- Captioned videos
- Alternative text for graphic images on web pages so that individuals who are blind and using text-to-speech technology can access the content
- Procurement policies and procedures that promote the purchase of accessible products
- Adherence to standards for the accessible and usable design of websites
- Comfortable access to computers for both left- and right-handed students
- Software that is compatible with assistive technology
- Computers that are on adjustable-height tables

In Physical Spaces

- Clear directional signs that have large, high-contrast print
- Restrooms, classrooms, and other facilities that are physically accessible to individuals who use wheelchairs or walkers
- Furniture and fixtures in classrooms that are adjustable in height and allow arrangements for different learning activities and student groupings
- Emergency instructions that are clear and visible and address the needs of individuals with sensory and mobility impairments
- Non-slip walking surfaces

ACKNOWLEDGMENT

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THE PRINCIPLES OF UNIVERSAL DESIGN

Version 2.0 (4-1-97)

UNIVERSAL DESIGN: The design of products and environments to be usable by all people, to the greatest extent possible, without adaptation or specialized design.

The authors, a working group of architects, product designers, engineers and environmental design researchers, collaborated to establish the following Principles of Universal Design to guide a wide range of design disciplines including environments, products and communications. These seven principles may be applied to evaluate existing designs, guide the design process, and educate both designers and consumers about the characteristics of more usable products and environments.

1

EQUITABLE USE

The design is useful and marketable to people with diverse abilities.

2

FLEXIBILITY IN USE

The design accommodates a wide range of individual preferences and abilities.

3

SIMPLE AND INTUITIVE USE

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

4

PERCEPTIBLE INFORMATION

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

5

TOLERANCE FOR ERROR

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

6

LOW PHYSICAL EFFORT

The design can be used efficiently and comfortably and with a minimum of fatigue.

7

SIZE AND SPACE FOR APPROACH AND USE

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.



THE PRINCIPLES OF UNIVERSAL DESIGN

Version 2.0 (1-17)

1 EQUITABLE USE

The design is useful and marketable to people with diverse abilities.



GUIDELINES 1a. Provide the same means of use for all users: identical whenever possible; equivalent when not.

- 1b. Avoid segregating or stigmatizing any users.
- 1c. Make provisions for privacy, security, and safety equally available to all users.
- 1d. Make the design appealing to all users.

- EXAMPLES**
- Power doors with sensors at entrances that are convenient for all users
 - Integrated, dispersed, and adaptable seating in assembly areas such as sports arenas and theaters

2 FLEXIBILITY IN USE

The design accommodates a wide range of individual preferences and abilities.



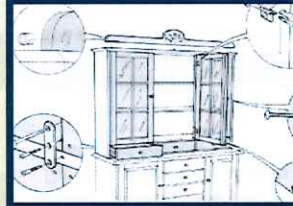
GUIDELINES 2a. Provide choice in methods of use.

- 2b. Accommodate right- or left-handed access and use.
- 2c. Facilitate the user's accuracy and precision.
- 2d. Provide adaptability to the user's pace.

- EXAMPLES**
- Scissors designed for right- or left-handed users
 - An automated teller machine (ATM) that has visual, tactile, and audible feedback, a tapered card opening, and a palm rest

3 SIMPLE AND INTUITIVE USE

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.



GUIDELINES 3a. Eliminate unnecessary complexity.

- 3b. Be consistent with user expectations and intuition.
- 3c. Accommodate a wide range of literacy and language skills.
- 3d. Arrange information consistent with its importance.
- 3e. Provide effective prompting and feedback during and after task completion.

- EXAMPLES**
- A moving sidewalk or escalator in a public space
 - An instruction manual with drawings and no text

7 SIZE AND SPACE FOR APPROACH AND USE

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.



GUIDELINES 7a. Provide a clear line of sight to important elements for any seated or standing user.

- 7b. Make reach to all components comfortable for any seated or standing user.
- 7c. Accommodate variations in hand and grip size.
- 7d. Provide adequate space for the use of assistive devices or personal assistance.

- EXAMPLES**
- Controls on the front and clear floor space around appliances, mailboxes, dumpsters, and other elements
 - Wide gates at subway stations that accommodate all users

4 PERCEPTIBLE INFORMATION

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.



GUIDELINES 4a. Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.

- 4b. Maximize "legibility" of essential information.
- 4c. Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions).

- 4d. Provide compatibility with a variety of techniques or devices used by people with sensory limitations.

- EXAMPLES**
- Tactile, visual, and audible cues and instructions on a thermostat
 - Redundant cueing (e.g., voice communications and signage) in airports, train stations, and subway cars

5 TOLERANCE FOR ERROR

The design minimizes hazards and the adverse consequences of accidental or unintended actions.



GUIDELINES 5a. Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.

- 5b. Provide warnings of hazards and errors.
- 5c. Provide fail safe features.
- 5d. Discourage unconscious action in tasks that require vigilance.

- EXAMPLES**
- A double-cut car key easily inserted into a recessed keyhole in either of two ways
 - An "undo" feature in computer software that allows the user to correct mistakes without penalty

6 LOW PHYSICAL EFFORT

The design can be used efficiently and comfortably and with a minimum of fatigue.



GUIDELINES 6a. Allow user to maintain a neutral body position.

- 6b. Use reasonable operating forces.
- 6c. Minimize repetitive actions.
- 6d. Minimize sustained physical effort.

- EXAMPLES**
- Lever or loop handles on doors and faucets
 - Touch lamps operated without a switch

THE PRINCIPLES WERE COMPILED BY ADVOCATES OF UNIVERSAL DESIGN, IN ALPHABETICAL ORDER:

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NOTE:
The Principles of Universal Design are not intended to constitute all criteria for good design, only universally usable design. Certainly, other factors are important, such as aesthetics, cost, safety, gender and cultural appropriateness, and these aspects must also be taken into consideration when designing.

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