

# Instructor/TA Info

## Instructor Information

**Name:** Steven Luke

**Office Location:** 1062 SWKT

**Office Phone:** 801-422-5978

**Office Hours:** Tue 12:00pm-2:00pm

Or By Appointment

**Email:** steven\_luke@byu.edu

## TA Information

**Name:** Joshua Cardinal

**Office Location:** 11th floor, room 1150, SWKT

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Tue 3:00pm-5:30pm

Fri 1:00pm-2:30pm

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# Course Information

## Description

Sensation and Perception will cover the basics of how we use our senses to interact with our environment. We'll focus quite a bit on vision in this class, both because much of our brain is dedicated to vision and because I like it best, but we will also consider other senses such as hearing, touch, pain, olfaction, and taste.

## Prerequisites

Psych Majors: PSYCH 307, PSYCH 309, PSYCH 310

Neuro Majors: NEURO 205. It is strongly suggested that you have completed a statistics course as well.

## Materials

Item	Price (new)	Price (used)
 <u>SENSATION AND PERCEPTION 10E</u> - <i>Required</i> by GOLDSTEIN, E	240.00	180.00
 <u>IClicker+</u> - <i>Required</i> by ICLICKER	47.00	

## Learning Outcomes

### 1. Understanding of perception, brain, and environment

Students will gain an understanding of how our brains interact with our external environment and give rise to our perceptions.

*Measurement:* Students will demonstrate this understanding on quizzes and on exams.

## **2. Research methods in cognitive neuroscience**

Students will develop an understanding of how we know what we know about sensation and perception, i.e., research methods in cognitive neuroscience and the scientific method.

*Measurement:* Students will demonstrate this understanding through in-class discussion, on quizzes/exams, and through coming to class ready to learn. Being ready to learn includes completing the assigned readings and assessments, participating in lecture and discussion, and completing outside assignments (e.g., labs).

## **3. Apply principles of sensation and perception**

Students will be able to apply the principles discussed in class to the world around them.

*Measurement:* Students will demonstrate this through lab assignments.

## **4. Critical reflection**

Students will be able to critically reflect on the content of psychology as well as on disciplinary values in light of their knowledge of and commitment to the restored gospel of Jesus Christ and to sustain personal values that are true to the gospel while maintaining their serious study of psychology and neuroscience.

*Measurement:* Multiple choice exams, quizzes.

## **Grading Policy**

Your grade will be calculated on the number of points you earn from examinations, attendance, and labs, divided by the total number of points possible. Grade cutoffs are as follows: A 93.0-100% A- 90.0-92.99% B+ 88.0-89.99% B 83.0-87.99% B- 80.0-82.99% C+ 78.0-79.99% C 73.0-77.99% C- 70.0-72.99% D+ 68.0-69.99% D 63.0-67.99% D- 60.0-62.99% E < 60% However, I reserve the right to curve exams and final grades, but I will only do so if I feel grades are abnormally low as a result of poorly-designed exams or assignments. Final grades WILL NOT be rounded up.

## **Attendance Policy**

Attendance is required. You should have purchased (or begged or borrowed) an i-clicker (which you will need to register at [ctl-clicker.byu.edu](https://ctl-clicker.byu.edu) (<https://proxy.qualtrics.com/proxy/?url=http%3A%2F%2Fctl-clicker.byu.edu&token=GKdnPp%2BhyWUfryG8k0eGPg%2FoBRAKAoWWRnDXjOWAc8o%3D>)). As an alternative, you can purchase the REEF polling app from iClicker.com for use on your devices. We will use the iClicker system every day, so please bring your response device to class. During class, students will be given opportunities to use these i-clickers to answer questions, respond to polls, express opinions, etc. Students who are in class on a given day and respond to at least 75% of the i-clicker questions/polls will receive 2 participation points for that day, up to a total of 40 points. Note that many of these questions will be asked at the beginning of class, so don't be late! There are 24 class days in the semester (excluding holidays and review days), so please come every day.

### **Makeup:**

If you miss class, you may need to earn participation points in other ways. Additional opportunities to earn participation points include:

- 1) Come to class. On occasion, additional participation points will be awarded for particular activities in class that can count towards your total (e.g. completing an in-class activity, answering a difficult i-clicker question correctly).
- 2) Complete the course evaluation at the end of the semester. (2 points)
- 3) Participate in a research study through SONA OR write up a short summary/critique of a study investigating sensation/perception. You will receive 1 point per credit/summary (up to 6 points total).

NOTE: It is not possible to receive more than 40 points. If your total is more than 40, it will be rounded down. I expect that you will read the material, as listed in the course schedule, prior to class.

## **Late Work Policy**

Late work (labs, exams) WILL NOT be accepted, except under extreme circumstances as outlined below.

Exams are available in the testing center for an extended amount of time; you are encouraged to take the test early so that illness or unforeseen circumstances do not cause you to miss the exam. Because the exams are available for an extended period of time, no make-up exams will be given, except in extreme circumstances as outlined below.

For both labs and exams, "extreme circumstances" are defined as as documented serious illness, traumatic injury, jail time, significant family tragedy, or other such unforeseeable events that make it impossible for you to take the exam or complete the assignment during the allotted time. If one of these events happens to you,

make no assumptions; you **must** contact me **BEFORE** the exam ends/before the lab due date via e-mail *and* obtain my documented assent via e-mail in order to take an exam late or turn in a lab late.

## Group Work Policy

For the labs you can choose to work in groups. Even though you can complete the assignment as a group, *you should each turn in your own copy of the assignment*. These copies will likely be identical, but **you will be graded on the version that you submit**. If you fail to submit your own copy of the assignment, I will assume that you did not contribute to the assignment and you will not receive points, unless your group-mates are willing to vouch for you.

## Assignments

### Assignment Description

#### Lab #1: How Sensitive are Our Senses?

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Sep  
26

Due: Tuesday, Sep 26 at 11:59 pm

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In this lab, you will explore the ability of your different sensory systems to detect changes/differences in stimuli. Detailed Instructions for each lab will be posted on the Schedule.

#### Exam 1

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Sep  
29

Due: Friday, Sep 29 at 9:00 pm

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Exam 1 covers chapters 1 (with the Signal Detection Theory Appendix), 2, 3, and 4. (40 multiple-choice questions)

#### Lab #2: Gestalt Principles & Attentional Cues

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Oct  
17

Due: Tuesday, Oct 17 at 11:59 pm

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In this lab, you will investigate how attention is captured and directed, and how we recognize objects. Detailed Instructions for each lab will be posted on the Schedule.

#### Exam 2

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Oct  
20

Due: Friday, Oct 20 at 9:00 pm

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Exam 2 covers chapters 5, 6, and 7. (40 multiple-choice questions)

#### Lab #3: Color & Depth

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Nov  
09

Due: Thursday, Nov 09 at 11:59 pm

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In this lab, you will explore color and depth perception. Detailed Instructions for each lab will be posted on the Schedule.

#### Exam 3

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Nov  
14

Due: Tuesday, Nov 14 at 9:00 pm

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Exam 3 covers chapters 8, 9 & 10. (40 multiple-choice questions)

### Final Exam

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Dec  
11

Due: Monday, Dec 11 at 2:00 pm

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The final exam covers chapters 11, 12, 13, 14, and 15. (40 multiple-choice questions)

It will also include a cumulative section with questions from chapters covered on previous exams. (20 multiple-choice questions)

### Lab #4: Hearing & Speech

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Dec  
14

Due: Thursday, Dec 14 at 11:59 pm

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In this lab you will investigate hearing and speech segmentation.

Detailed Instructions for each lab will be posted on the Schedule.

### I-Clicker Participation Points

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Dec  
14

Due: Thursday, Dec 14 at 11:59 pm

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You will receive 2 points for each day you attend class and respond to at least 75% of the i-clicker questions/polls, up to a maximum of 40 possible points.

To receive these points you will need to register your iClicker at [ctl-clicker.byu.edu](http://ctl-clicker.byu.edu)

(<https://proxy.qualtrics.com/proxy/?url=http%3A%2F%2Fctl-clicker.byu.edu&token=GKdnPp%2BhyWUfryG8k0eGPg%2FoBRAKAoWWRnDXjOWAc8o%3D>)

### Total Participation Points

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Dec  
14

Due: Thursday, Dec 14 at 11:59 pm

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This is the sum of your in-class and bonus participation points, up to a maximum possible 40 points.

### SONA/Article Summary Participation Points (Make-up)

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Dec  
14

Due: Thursday, Dec 14 at 11:59 pm

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You can also earn participation points by completing up to 6 hours of SONA credit.

Or, if you prefer, you may earn these points by writing a short summary/critique of a peer-reviewed article on the topic of sensation/perception. If you are interested in doing this, see the form on the schedule or contact me about it. 1 point per summary/critique, up to 6 points.

Along with i-clicker points, these points will count towards your participation point total, but you can only earn up to a maximum of 40 participation points total.

### Other Participation Points (Make-up)

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Dec  
14

Due: Thursday, Dec 14 at 11:59 pm

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These extra points can be earned in class, and will be given out at the instructor's discretion, for things such as completing in-class assignments or correctly answering i-clicker questions.

Along with i-clicker points, these will count towards your participation point total, but you can only earn up to a maximum of 40 participation points total.

# Schedule

Date	Readings	Assignments and Exams
Week 1		
T Sep 05 Tuesday	<p>Topic: Course Intro, Preceptual Stages, Thresholds, Signal Detection Theory</p> <p>Reading: Chapter 1, Signal Detection Theory Appendix</p>	<p>Slides: New Chapter 1.pptx <a href="#">Download</a></p> <p>Slides: Chapter 1.pptx <a href="#">Download</a></p> <p><b><u>Lab 1 Instructions:</u></b> Lab 1 - How Sensitive are Your Senses.pdf <a href="#">Download</a></p>
Th Sep 07 Thursday	<p>Topics: The Eye, Retina</p> <p>Readings: Chapter 2, pgs 21-34</p>	<p>Slides: S&amp;P Chapter 2.pptx <a href="#">Download</a></p>
Week 2		
T Sep 12 Tuesday	<p>Topics: Neurons, Convergence, Visual Development</p> <p>Readings: Chapter 2, pgs. 35-46</p>	
Th Sep 14 Thursday	<p>Topics: Lateral Inhibition, Retina to Cortex</p> <p>Readings: Chapter 3, pgs. 54-64</p>	<p>Slides: S&amp;P Chapter 3.pptx <a href="#">Download</a></p>
Week 3		
T Sep 19 Tuesday	<p>Topics: Feature Detectors, Sensory Code</p> <p>Readings: Chapter 3, pgs. 65-72</p>	
Th Sep 21 Thursday	<p>Topics: Cortical Organization, Pathways, Modularity, Interactions</p> <p>Readings: Chapter 4</p>	<p>Slides: S&amp;P Chapter 4.pptx <a href="#">Download</a></p>
Week 4		
T Sep 26 Tuesday	CATCH-UP/REVIEW	<p>SP Exam 1 Study Guide.docx <a href="#">Download</a></p> <p><b>Lab #1: How Sensitive are Our Senses?</b></p> <p><b><u>Lab 1 Instructions:</u></b> Lab 1 - How Sensitive are Your Senses.pdf <a href="#">Download</a></p> <p><b><u>Lab 2 Instructions:</u></b> Lab 2 - Attention &amp; Recognition.pdf <a href="#">Download</a></p> <p><b>Exam 1 Opens</b></p>
Th Sep 28 Thursday	<p>Topics: Perception is Hard, Organization</p> <p>Readings: Chapter 5, pgs. 95-108</p>	<p>Slides: S&amp;P Chapter 5.pptx <a href="#">Download</a></p>
F Sep 29 Friday		<b>Exam 1 Closes</b>
Week 5		

T Oct 03 Tuesday	Topics: Objects & Scenes, Faces Readings: Chapter 5, pgs. 108-122	
Th Oct 05 Thursday	Topics: What attracts attention, benefits of attention Readings: chapter 6, pgs. 127-137	Slides: S&P Chapter 6.pptx <a href="#">Download</a>
Week 6		
T Oct 10 Tuesday	Topics: Costs of not attending, distraction, integration, autism & development Readings: Chapter 6, pgs. 137-147	
Th Oct 12 Thursday	Topics: Ecological Approach, Navigation, Acting, Other's Actions Readings: Chapter 7	Slides: S&P Chapter 7.pptx <a href="#">Download</a>
Week 7		
T Oct 17 Tuesday	CATCH-UP/REVIEW	SP Exam 2 Study Guide.docx <a href="#">Download</a> <b>Lab #2: Gestalt Principles &amp; Attentional Cues</b> <u>Lab 2 Instructions</u> : Lab 2 - Attention & Recognition.pdf <a href="#">Download</a> <u>Lab 3 Instructions</u> : Lab 3 - Depth Cues & Color Deficiency.pdf <a href="#">Download</a> <b>Exam 2 Opens</b>
Th Oct 19 Thursday	Topics: Motion Perception: Function, Motion Perception & the Eye Readings: Chapter 8, pgs. 175-186	Slides: S&P Chapter 8.pptx <a href="#">Download</a>
F Oct 20 Friday		<b>Exam 2 Closes</b>
Week 8		
T Oct 24 Tuesday	Topics: Motion Perception & the Brain, Motion & the Body, Event Perception Readings: Chapter 8, pgs. 186-195	
Th Oct 26 Thursday	Topics: What is color, Trichromatic Theory, Color Deficiencies Readings: Chapter 9, pgs. 200-210	Slides: S&P Chapter 9.pptx <a href="#">Download</a>
Week 9		

T Oct 31 Tuesday	Topics: Opponent-Process Theory, Cortex, Color & Lightness Constancy, Development of Color Vision Readings: Chapter 9, pgs. 210-222	
Th Nov 02 Thursday	Topics: Depth Cues Readings: Chapter 10, pgs. 228-241	Slides: S&P Chapter 10.pptx <a href="#">Download</a>
Week 10		
T Nov 07 Tuesday	Topics: Size, Illusions, Development Readings: Chapter 10, pgs. 242-256	
Th Nov 09 Thursday	CATCH-UP/REVIEW	SP Exam 3 Study Guide.docx <a href="#">Download</a> <b>Lab #3: Color &amp; Depth</b> Lab 3 Instructions: Lab 3 - Depth Cues & Color Deficiency.pdf <a href="#">Download</a> Lab 4 Instructions: Lab 4 - Pitch Hearing Loss & Speech Perception.pdf <a href="#">Download</a> <b>Exam 3 Opens</b>
Week 11		
T Nov 14 Tuesday	Topics: Sound, Sound to Electricity, Basilar Membrane, Pitch, Infant Hearing Readings: Chapter 11, pgs. 275-284	Slides: S&P Chapter 11.pptx <a href="#">Download</a> <b>Exam 3 Closes</b>
Th Nov 16 Thursday	Topics: Auditory Localization, Organization Readings: Chapter 12	Slides: S&P Chapter 12.pptx <a href="#">Download</a>
Week 12		
T Nov 21 Tuesday	<b>Friday Instruction</b>	
W Nov 22 Wednesday	<b>No Classes</b>	
Th Nov 23 Thursday	<b>Thanksgiving</b>	
Week 13		
T Nov 28 Tuesday	Topics: Topics: Speech Signal, Phonemes, Words, Speech in the Brain, Development of Speech Perception Readings: Chapter 13	Slides: S&P Chapter 13.pptx <a href="#">Download</a>
Th Nov 30 Thursday	Topics: Cutaneous System, Details, Vibration, Texture Readings: Chapter 14, pgs. 338-348	Slides: S&P Chapter 14.pptx <a href="#">Download</a>
Week 14		

T Dec 05 Tuesday	Topics: Objects, Pain Readings: Chapter 14, pgs. 348-357	
Th Dec 07 Thursday	Topics: Taste & Smell Readings: Chapter 15, pgs. 363-380	Slides: S&P Chapter 15.pptx <a href="#">Download</a>
Week 15		
T Dec 12 Tuesday	Topics: Flavor, Development of Chemical Senses Readings: Chapter 15, pgs. 381-385	
Th Dec 14 Thursday	CATCH-UP/REVIEW	<b>Lab #4: Hearing &amp; Speech</b> Lab 4 Instructions: Lab 4 - Pitch Hearing Loss & Speech Perception.pdf <a href="#">Download</a> SP Final Review.pptx <a href="#">Download</a> Final Study Guide.docx <a href="#">Download</a> Final Review Study Guide - Cumulative Portion of Exam.docx <a href="#">Download</a> <b>I-Clicker Participation Points</b> <b>Other Participation Points (Make-up)</b> <b>SONA/Article Summary Participation Points (Make-up)</b> <b>Total Participation Points</b>
F Dec 15 Friday	<b>Fall Exam Preparation (12/15/2017 - 12/15/2017)</b>	
Sa Dec 16 Saturday	<b>First Day of Fall Final Exams (12/16/2017 - 12/21/2017)</b> Final Exam: 3106 JKB 7:00am - 10:00am	

## University Policies

### Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and every instructor's expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

### Sexual Misconduct

In accordance with Title IX of the Education Amendments of 1972, Brigham Young University prohibits unlawful sex discrimination against any participant in its education programs or activities. The university also prohibits sexual harassment-including sexual violence-committed by or against students, university employees, and visitors to campus. As outlined in university policy, sexual harassment, dating violence, domestic violence,



sexual assault, and stalking are considered forms of "Sexual Misconduct" prohibited by the university.

University policy requires all university employees in a teaching, managerial, or supervisory role to report all incidents of Sexual Misconduct that come to their attention in any way, including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Incidents of Sexual Misconduct should be reported to the Title IX Coordinator at [t9coordinator@byu.edu](mailto:t9coordinator@byu.edu) or (801) 422-8692. Reports may also be submitted through EthicsPoint at <https://titleix.byu.edu/report> (<https://titleix.byu.edu/report>) or 1-888-238-1062 (24-hours a day).

BYU offers confidential resources for those affected by Sexual Misconduct, including the university's Victim Advocate, as well as a number of non-confidential resources and services that may be helpful. Additional information about Title IX, the university's Sexual Misconduct Policy, reporting requirements, and resources can be found at <http://titleix.byu.edu> (<http://titleix.byu.edu>) or by contacting the university's Title IX Coordinator.

## **Student Disability**

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

## **Academic Honesty**

The first injunction of the Honor Code is the call to "be honest." Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. "President David O. McKay taught that character is the highest aim of education" (The Aims of a BYU Education, p.6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

## **Plagiarism**

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor. Inadvertent plagiarism, which may not be a violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education where all members of the university are expected to acknowledge the original intellectual work of others that is included in their own work. In some cases, plagiarism may also involve violations of copyright law. Intentional Plagiarism-Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another as one's own without providing proper attribution to the author through quotation, reference, or footnote. Inadvertent Plagiarism-Inadvertent plagiarism involves the inappropriate, but non-deliberate, use of another's words, ideas, or data without proper attribution. Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply not being sufficiently careful in research and writing. Although not a violation of the Honor Code, inadvertent plagiarism is a form of academic misconduct for which an instructor can impose appropriate academic sanctions. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance. Examples of plagiarism include: Direct Plagiarism-The verbatim copying of an original source without acknowledging the source. Paraphrased Plagiarism-The paraphrasing, without acknowledgement, of ideas from another that the reader might mistake for the author's own. Plagiarism Mosaic-The borrowing of words, ideas, or data from an original source and blending this original material with one's own without acknowledging the source. Insufficient Acknowledgement-

The partial or incomplete attribution of words, ideas, or data from an original source. Plagiarism may occur with respect to unpublished as well as published material. Copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

## **Respectful Environment**

"Sadly, from time to time, we do hear reports of those who are at best insensitive and at worst insulting in their comments to and about others... We hear derogatory and sometimes even defamatory comments about those with different political, athletic, or ethnic views or experiences. Such behavior is completely out of place at BYU, and I enlist the aid of all to monitor carefully and, if necessary, correct any such that might occur here, however inadvertent or unintentional. "I worry particularly about demeaning comments made about the career or major choices of women or men either directly or about members of the BYU community generally. We must remember that personal agency is a fundamental principle and that none of us has the right or option to criticize the lawful choices of another." President Cecil O. Samuelson, Annual University Conference, August 24, 2010

"Occasionally, we ... hear reports that our female faculty feel disrespected, especially by students, for choosing to work at BYU, even though each one has been approved by the BYU Board of Trustees. Brothers and sisters, these things ought not to be. Not here. Not at a university that shares a constitution with the School of the Prophets." Vice President John S. Tanner, Annual University Conference, August 24, 2010