Inspired Learning through Inspired Teaching

Center for Promotion of Learning and Teaching
המרצה לקידום הלמידה והוראה

הprecision שואפים, מאצי המ kısıים, להופע בحاولת הבהרה. הפחדות של האקדמייה גיו לזר ללקחי, וhallah לאמביה קושיה.

 textColor רוח ב았טע ה됭ו. תמכה והסJvm פארוגז הטורפים ממרצים בסקמטיה, או מאסומע מהו במד.

בחומת המ 오히יני אבה נודגנאיי צדיקתיה. הפיחים של המוחים לקידום הלמידה והוראה קסלי למרכזהخدام לקם ושפר

את הוראה, לימודים עומדים איות הוראה תדוני, לאון ולאועיש את ההורה שלנה להפוך את הלמידה ליועלה.

וסמארט

 недо

مدור הורה

מדור הערכה

מודר טכנולוגית למידה

iyor באלקטרוס בחרזים בחרזים

9:00-10:30 26/11/17
CPT’s Mission & Goals

To support and promote the Technion’s commitment to excellence in teaching and learning and to increase and foster the campus involvement in education:

- Promote a cultural shift from teacher-centered to student-centered learning.
- Encourage and support educational innovations.
- Leverage technology to improve instruction and to advance student learning.
- Implement Learning Outcomes Assessment.
- Provide workshops and consultations to assist faculty and TAs to continually refine their pedagogical skills and help them teach more effectively.
Given the radical changes in the nature of the science and what we have learned about effective ways to teach, this is an opportune time to address the science we teach so that it better represents the science we do.

National Research Council (2003).
Learning and Teaching
Principles for Good Practice in Undergraduate Education

The Center for Promotion of Teaching supports activities that are consistent with “The Seven Principles for Good Practice in Undergraduate Education“:

- Encourage student-faculty contact
- Encourage cooperation among students
- Encourage active learning
- Give prompt feedback
- Emphasize time on task
- Communicate high expectations
- Respect diverse talents and ways of learning

Chickering, A.W. and Gamson, Z.F. 1987
Paradigm Shift:
Teacher-Centered to Learner-Centered

- Knowledge is transmitted from professor to student
- Students passively receive information
- Teaching and assessing are separate
- Culture is competitive and individualistic

- Students construct knowledge
- Students are actively involved
- Teaching and assessment are intertwined
- Culture is cooperative, collaborative and supportive
CPT Activities

- Workshops for new faculty and new TAs
- Faculty-tailored workshops on teaching and assessment
- Individual Teaching Consultation
- Teaching observation
- Support for curricular and course design
- Implementation and Integration of new technologies
- Implementation and Integration of Learning Outcomes Assessment
- Conducting surveys to gauge levels of students' satisfaction concerning teaching and learning
Workshops
Faculty Workshop Components

Part A:
- The Act of Teaching – From Theory to Practice
- Leading Discussions in class
- Active Learning - ways to increase students’ engagement
- Microteaching

Part B
- Assessing Student Learning - From Summative to Formative Assessment
  - Creating Assignments & Exams
  - Grading & Feedback
  - Classroom Assessment Technique (CAT)

Part C
- Using Technology in the Classroom
Workshops for Teaching Assistants

Increase the involvement of students in the tutorial and change the format of the traditional tutorials to active tutorials by using Classroom Assessment Techniques (CAT) and solving homework in groups.

- 4 workshops for new TA’s (~300 each year)
  - Two-day teaching workshop (including microteaching)
  - Mentoring and class observation during the first semester

- 6 Workshops for TAs
  - Class management
  - Problem solving in small groups
  - Using clickers in the class
Many thanks to the consultant who pointed out the weaknesses of my preparation. After going back and preparing myself appropriately, I was complimented by my supervisor who said I could be held up as a model for others to emulate.
I especially appreciated your encouragement to reflect on my teaching following each lesson in order to better prepare myself for the next time I teach this material.
Technology-enhanced Teaching and Learning

The CPT work with individual faculty and programs to:

- Identify appropriate educational technologies and effectively incorporate them into a course.
- Adapt courses or individual learning activities for online or blended learning.
- Flip a classroom to maximize student learning.
- Leverage opportunities to collect data for iterative improvement.

Our goal is to tailor our educational technology support to meet your needs.
Pedagogy and Technology Support
Moodle - Learning management system

- Creating awareness about using Moodle as a tool for improving teaching
- Providing assistance to support the design, the development and the management of course web sites.
  - Workshops
  - Individual consultation
  - Technological and pedagogical support
بورוים הביאו!
להנהר המודרני לומדים מתמשכים

Moodle (מודול) הוא מענה ליווי ל-'.$1$ מנהלקクラス. המייל הלמידה, ייעוץ, ארזון וניהול של

אתה מומחה להבאת מסחל קרן המשביר את מותה המערער.

לכל מדע מופ終わ יורה על מערכה הה
Moodle מומחי יסגר לאות.

OpenApp

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Education On Demand

- State of the Art HD Technology
- Old Video Server
  - 200 courses
- Technion YouTube
  - 49 courses
- Panopto Server
  - 250 courses
Webcasting with Panopto

- Developed at Carnegie Mellon University.
- Teachers can create and post comprehensive recordings that include video, audio, PowerPoint and screen components.
- It has student-centric features such as text-based search discussions, quizzes and note-taking abilities.
Webcasting with Panopto

The system requires little training and enhance faculty’s chances to engage students:

- Allows students to concentrate on the classroom lecture and discussion without having to take detailed notes.
- Permits students to study and learn at their own pace and have the option to review material at a later date.
How do students use recorded lectures

N=640

* % of students who answered “often” or “usually” to the nature of their usage of recorded lectures
The video lectures are my life jacket ... I can’t write notes at my lecturer’s pace, so I find the video lectures very helpful...
Pedagogy and Technology Support
Peer Instruction with PRS

• Active Learning
• Student Involvement
• Real-Time Feedback
Flipping the Classroom
With Danny Lewin

Video 7.1: Introduction

Now answer the following question.

Consider the following linear program:

\[
\begin{align*}
\text{max } & \quad f = -2x - 3y - z \\
\text{s.t. } & \quad x - y + z \leq 3 \\
& \quad 3x + 4y - 2z \geq 10 \\
& \quad 2x + 4y \leq 2 \\
& \quad 4x - y + z \leq 0 \\
& \quad x, y, z \geq 0
\end{align*}
\]

This formulation is not in the inequality form LP for the following reason:

- Equation (4) has variables missing on the left hand side.
- Equation (1) should not have negative signs.
- Equation (3) is a constraint of the form \( \geq \).
Assessment and Evaluation
Assessment and Examination Center
From Summative To Formative Assessment

When the cook tastes the soup, that's formative: When the guests taste the soup, that's summative

Robert Stake
Learning Outcomes Based Assessment

- Identify Learning Outcomes
- Assess Performance
- Evaluate Results
- Modify Program
- Continuous Program Improver
The Assessment Group Activities

- Guidance & workshops for teaching staff on Fair Assessment Practices, including alternative methods.
- Pedagogical guidance on assessment and exams preparation based on a learning outcomes model developed at the center.
- Distributing tools that support the assessment process.
- Individual Assessment Consultation for staff members.
- Implementation of Self & Peer assessment (using criteria).
- Checking multiple-choice exams and preparation of statistical reports.
The Assessment Group Activities

• In light of difficulties in top-down implementation of professional assessment standards, the Assessment group implemented a bottom-up strategy with faculty members who use the services of scrambling and checking multiple-choice exams.

• Prior to the production of exam versions, proofreading and recommendations are made.

• After the exam, interpretations and recommendations are given in light of the exam results and statistical analyzes.

• The group supports and promotes the use of formative assessment by providing help to design and implement innovative assessment methods as peer assessment, and Class Technic Assessment in lectures and tutorials.
Review, Scramble & Check multiple-choice exams

The center implemented new technology - The TestPerfector, for exam scrambling, exam grading and statistical analysis of exam results (120 multiple choice exams/semester).

| Average: | 51 |
| Median: | 50 |
| Std Dev: | 22 |

| Num. of Students: | 93 |
| Num. under 55: | (55.9%) 52 |
| Cronbach's Alpha: | 0.544558 |

### TTP Answers Statistics (%)

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The TestPerfector’s Statistics for a Test
בחצלאות