UCLA OFFICE OF INSTRUCTIONAL DEVELOPMENT
EDUCATIONAL TECHNOLOGY SYSTEMS

ANNUAL REPORT 2007 - 2008

TEACHING AND LEARNING TECHNOLOGY IN
GENERAL ASSIGNMENT CLASSROOMS
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Introduction

This report contains statistical data and information about the general assignment classrooms at UCLA, including current teaching and learning technology installations and plans for future upgrades. It also describes the development issues facing the Educational Technology Systems unit, current and upcoming projects, long term plans, and information about procedures and equipment. Educational Technology Systems consists of:

- Audio-Visual Services
- Classroom Technology Design and Maintenance
- BruinCast
- Educational Technology Innovations

Audio-Visual Services provides technical support, training, scheduling, and other services directly to users of UCLA General Assignment Classrooms. Classroom Technology Design and Maintenance works with other campus units including Capital Programs, Facilities, and the Registrar’s Office to design, install, and maintain educational technology in general assignment classrooms. BruinCast is a service that records and webstreams undergraduate courses for use by students as a study aid. Educational Technology Innovations is the research, development and training unit of ETS, investigating and implementing technologies such as audience response systems (“clickers,”) rich media presentation, enhanced podcasting, etc.

Classroom Equipment Statistics, as of Fall 2008

There are approximately 200 General Assignment Classrooms available for instruction. The number varies as much as 5% annually due to construction, seismic retrofitting, and maintenance. During Summer 2008, one technology classroom, Life Sciences 4127, was removed from the General Assignment Classroom pool to be converted into departmental space. The replacement room, Botany 133, was deemed not suitable for conversion to a technology classroom.

- 100% have network and Internet access,
- 89% have installed video playback equipment,
- 52% have installed data projection projectors,
- 33% have installed classroom computers
- 22% have installed slide projectors,
- 21% have streaming or podcasting capability.
## Classroom Report Summary

<table>
<thead>
<tr>
<th>Classroom Size</th>
<th># of Rooms</th>
<th>Overhead Projector</th>
<th>Network Connection</th>
<th>Video Playback</th>
<th>Data Projection</th>
<th>Media Amplification</th>
<th>Voice Amplification</th>
<th>Installed Computer</th>
<th>Slide Projection</th>
<th>Streaming / Podcast</th>
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<tr>
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<td>40-59</td>
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<td>11</td>
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<td>150-199</td>
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<td>7</td>
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<td>6</td>
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</tr>
</tbody>
</table>

Totals: 198, 198, 198, 177, 102, 103, 80, 66, 44, 42

%: 100%, 100%, 89%, 52%, 52%, 40%, 33%, 22%, 21%

## During the 2007-2008 Academic Year OID...

- continued to install equipment to support the BruinCast course webcasting project, including audio-streaming devices in eleven additional rooms,
- installed a rich media capture station in La Kretz 110 during Spring Quarter 2008 as part of the ongoing Rich Media Pilot Project,
- upgraded six rooms to full technology classroom status, including three rooms in Rolfe, two rooms in Haines, and one room in Boelter,
- renovated the teaching and learning technology installations in two large lecture halls: Court of Sciences 50 and Moore 100,
- added two classroom computers to existing technology classrooms,
- replaced 40 aging video/data projectors in existing technology classrooms,
- installed a second projector and screen in the back of LaKretz 120 video-conferencing courses,
- converted eleven technology classrooms to a new wireless microphone system,
- ran workshops, trainings, and events in the OID Training and Demonstration classroom in Powell Library,
- and continued to research and develop new classroom technologies to enhance instruction.
In recent years the average projector age has remained relatively stable as a result of increasing the number of new installations each year. Although the statistics look good, many rooms had projectors that were five or more years old. In 2007-2008, priorities were shifted from new installations to replacing these older projectors. The result is the lowest average projector age since statistics have been kept. With the funding of the Classroom Business Plan in 2008-2009, the projector replacements will continue while the rate of new installations returns to planned levels.

Classroom Upgrade Plan
Fall 2008 – Summer 2009

New Installations: General Assignment Classrooms that have never had installed educational technology of any kind. The rooms listed below represent the current plans; the actual installations may vary due to scheduling and special departmental and faculty requests.

Upgrades: Rooms that have had installed educational technology, but the current inventory is either obsolete or an incomplete equipment suite. When completed, these rooms will meet current standards for classrooms of their size.
Equipment Refreshment: Rooms that meet current standards, but have equipment that needs replacing according to lifespan estimates. In most cases, this involves the installed data/video projector, which have a shorter useful life than sound systems, screens, source, system and switching equipment, etc.

Fall 2008

New Installations:

Boelter 2760
Boelter 5420
Boelter 5440
Dodd 154
Dodd 162
Geology 6704
Haines A74
Haines A78
Haines 110
Haines 122
Royce 148
Royce 150
Royce 154

Upgrades:

Court of Sciences 50
Dodd 147
Moore 100

Equipment Refreshment:

Data/Video Projector Replacements:
- Boelter 3400
- Court of Sciences 76
- Haines A25
- Haines A44

Winter 2009

New Installations:

Boelter 5422
Dodd 78
Dodd 178
Royce 152
Royce 156
Royce 160

**Spring Quarter 2009**

**New Installations:**

Bunche 3170
Bunche 3178
Bunche 3211
Royce 162
Royce 164
Royce 166

**Summer 2009**

**New Installations:**
Boelter 9436
Franz 2258A
Royce 362

**Upgrades:**
Court of Sciences 24
Franz 1178

**Equipment Refreshment**

Data/Video Projector Replacements:
- Math Sciences 5117
- Math Sciences 5118
- Math Sciences 5127
- Math Sciences 5128
- Math Sciences 5137
- Math Sciences 5138

**OID Educational Technology Systems**

**Classroom Technology Planning**
In 2006, OID developed and submitted a business plan to the Chancellor requesting funding to convert all UCLA general assignment classrooms to technology rooms, maintain them to current standards, and invest in emerging teaching and learning tools. The plan was funded beginning in the 2008-2009 fiscal year. The summary of the plan as originally submitted is provided below for context, followed by current revisions based on two additional years of experience.

Classroom Technology Business Plan
2008-2012

Introduction

The Office of Instructional Development has responsibility for providing teaching and learning technologies to UCLA general assignment classrooms in support of undergraduate instruction. The model for providing technology has changed over the years, driven by advances in technology, changes in the ratio between staff and equipment costs, and the needs and desires of the teaching faculty. UCLA classrooms reflect the technology and teaching methods of the era in which they were built.

Background

In response to faculty demand and with support from the Chancellor, in 1980 OID spearheaded an ambitious collaboration among Capital Programs, Facilities Management, the Registrar’s Office and its own Media Systems Design group to develop a ten-year plan for:

- replacing damaged flooring and ceilings
- bringing rooms up to ADA access standards
- restoring or replacing damaged writing surfaces
- recovering seating or replacing missing seats
- painting walls
- enabling rooms to be darkened for projection
- building projection booths, where possible, in three large lecture halls
- installing screens in rooms
- equipping ten classrooms for media projection.

That plan was successfully concluded in 1990 and new practices were developed for cleaning classrooms, regularly cleaning boards and supplying chalk, scheduling media classrooms, and developing delivery systems for media in the 195 rooms which did not have installed equipment.
A second ten year plan was developed with more modest goals: attempting to refresh classrooms at least once every 20 years, and to install more media as faculty use of both film and video began to surge. This plan quickly foundered in the severe budget cuts of the early 1990’s. The reduced circumstances forced a number of major concessions and an agenda which:

- limited room renovations and eliminated refreshment schedules
- decreased the number of equipment operators and converted those funds for the purchase of overhead projectors and television monitors
- phased out all equipment delivery and pick-up by mid-decade
- re-charged all professional school programs for media use
- emphasized equipment for the expanded use of video over film
- supported the industry changeover from 3/4 inch video to VHS video standards
- attempted to coordinate media installation and lighting changes with seismic renovation projects, rather than based on room conditions and use.

The 1994 Northridge earthquake further reduced resource availability, and classrooms again began to deteriorate, even as the faculty expressed interest in using expanded new media as part of their teaching. OID requested annual funding for the installation and upgrade of media equipment in classrooms, while continuing to act as an advocate to other campus units for refreshment and renovation of the physical facilities. The chancellor allocated $463,000 annually for the media equipment, allowing OID to increase the number of equipped rooms to around 65, or 33% of the inventory. In 2005, an additional $300,000 per year was approved by the campus administration, which has led to an additional 37 installations planned or completed by July 1, 2007. This represents roughly half of all general assignment classrooms.

In 1992, OID initiated a plan to connect all classrooms on campus to the backbone network. Then EVC Rich, suggested that the plan should be expanded to wire all workplaces on campus. While enthusiasm developed for the latter plan, classrooms, somewhat ironically, were left out of the agenda. OID redirected some internal funding and staff, and wiring of classrooms for network connection was finally completed almost a decade later, in 2004. Operation of the classroom network was then turned over to Campus Telecommunication Services.

Current Environment

As OID strives to build additional media classrooms and refresh current installations, the technology environment for classrooms continues to undergo continuous change. Media projection has progressed from film to 3/4 inch video to VHS video, to DVD video. Slide projection – a major classroom investment – is no longer viable as digital projection has
overtaken the market. Electro-mechanical equipment has become much less common, and preventive maintenance is not possible for electronic equipment. Thus the emphasis must now be on replacement rather than repair. Microsoft PowerPoint and similar software require the use of digital projection in all classrooms. Faculty rely on the availability of digital projection regardless of class enrollment. As the basic equipment suite continues to undergo change, faculty express keen interest in using other systems: e.g. electronic writing tablets, personal response systems, live data streaming, wireless study groups, etc. The demand for faculty consultation in equipment use, software applications, teaching methodologies, and media alternatives has increased dramatically since 1998-1999 most likely covariant with the implementation of the Instructional Enhancement Initiative.

New media formats, and concerns about intellectual property, have created a radically different classroom environment. At the same time, technological capability often conflicts with legal capability. Increased use of new media has also expanded the use of traditional media. The use of time-shifting media systems – such as Bruincast, Video Furnace, and Pod-casting – have expanded faculty initiatives for teaching in a next-generation format. Efforts to move instruction out of the classroom (such as evidenced by the Blended Instruction Case Studies project) have not been embraced by either faculty or students. And when such projects are successful, they require a larger support system than the campus is capable of providing.

Technological changes often require additional large investments in resources – such as the current request to implement a campus-wide course management system. Much of this investment will reap only partial returns if classrooms remain one to three generations behind the current teaching environment.

The shift from delivery of overhead projectors and television monitors on carts to the installation of data/video projection systems with in-room sources and remote monitoring and troubleshooting has caused major shifts in both funding priorities and needs. OID, in consultation with campus partners and other UC experts, have used industry practices to develop UCLA Campus Classroom Standards. These standards define the equipment suite needed for each room to support currently accepted instruction practice. However, UCLA invests less per classroom for equipment and maintenance than do the other UC Campuses, and is comparatively behind them in the quality of the rooms. The existing budget allocation, even with the addition of recent augmentations, has reached the limit where maintenance and upgrade costs over the next five years will not support any additional room installations to meet the standards. Thus, while other UC campuses either plan or already have completed in room data/video projection in every classroom, UCLA is currently slightly over 50%, without existing or planned resource capability for augmentation.

Classroom Technology Business Plan
In order to enable UCLA faculty to achieve their full teaching potential, 100% of UCLA general assignment classrooms must have digital projection capability. To achieve this goal, the Office of Instructional Development proposed a five year plan for installation, upgrade, and maintenance of media equipment. As of October 1, 2007, there will be 95 classrooms without installed equipment. A funding proposal was submitted to the Chancellor’s Office for the equipment expenses required to complete the fitting of these rooms. In addition, based on the assumptions below, an additional amount was requested over the next five years to keep the classrooms refreshed with current equipment. For the 2008-2009 fiscal year, OID will receive additional permanent allocations to achieve the stated goals of the plan.

The following information describes some of the assumptions used to create the plan.

General

- Classroom technology standards are those described in UCLA Classroom Standards, available on the OID website (www.oid.ucla.edu). These have been developed by UCLA Classroom Technology Design and Maintenance staff based on campus practice, UC wide consultation, and industry standards.
- Equipment costs are assumed to remain basically constant, as the pattern over the last few years suggests that price drops accompany increases in performance.
- Video Projectors need to be replaced every 5 years. Media source, switching, and control systems need to be replaced every 10 years. Sound systems, speakers, and screens need to be replaced every 15 years. These assumptions are subject to annual review based on technological change.
- Some rooms require a higher level of equipment than the standard to meet teaching needs.
- Auditoriums require two projectors and two screens for displaying visual presenter output as well as subsidiary equipment such as personal response systems. (See the following New Auditorium Standard.)
- All auditoriums, and most large lecture halls where the room configuration is appropriate, will receive equipment to enable video webcasting. All classrooms, lecture halls, and auditorium will receive equipment to enable audio webcasting.
- Changes in technology are not accounted for. There are no current plans to upgrade to plasma monitors, high definition DVD players, wireless projection, etc. If these, or other currently unknown technologies become the industry standards, the plan may need to be revisited before the next five year cycle.
Staffing

- Media Systems Design currently has 3 FTE: Principal Electronics Technician, Principal Television Technician, Electronics Technician.
- These staff, with consultation and professional technician temporary assistance as needed, can carry out the goals of the plan for the first 3 years.
- One additional FTE of maintenance staff will be required when the number of equipped classrooms exceeds 150.

Maintenance

- Media Rooms require the following maintenance:
  - Monitoring lamp life
  - Changing lamps
  - Changing out equipment
  - Sending out and monitoring equipment repair
  - Adjusting and tuning
- Annual Maintenance cost for all classrooms is cost of projector lamps, projected cost of repairs and replacements, and staffing.
- 1 FTE is required per 100 rooms for annual maintenance.

Visual Presentation Equipment

- All 200 classrooms currently have overhead projectors on carts. This equipment is obsolete.
- Replacement of overhead projectors with visual presentation equipment is included in the installation and upgrade equipment estimates. All overhead projectors will be replaced with visual presenters. Installations will be permanent where possible, otherwise a cart will be used.

**OID Educational Technology Systems**

**Current Classroom Technology Planning**

The Classroom Technology Business Plan was developed and presented for approval in 2006. Since that time, while the overall goals have remained the same, changes in the environment have necessitated revisions in some areas such as scheduling and staffing. In addition, growth in demand for the BruinCast undergraduate course webcasting program has led to reallocations of internal resources to meet that demand.
Changes to the Plan

1. Schedule Changes. The schedule of upgrades and installations in the Plan were developed using basic information such as equipment age and time since installation. However, real-world constraints such as availability of UCLA Facilities craftsmen and room schedules necessitate modifications to the listed classrooms. The current plan, showing the year of expected completion for all rooms on campus, is attached as Appendix 1.

2. Equipment Changes. Although the general types of equipment outlined in the Plan remain the same, specific brands, model numbers listed in the Cost Estimates page have been updated. One significant alteration is the decision to more closely tie the size, brightness and resolution of data/video projectors to the classroom capacity and usage. Thus, instead of two models only, multiple types of projector are now being used. An updated equipment list is attached as Appendix 1.

3. Installation and Upgrade Staffing. The plan originally called for an additional career Electronics Technician to meet the demand of the upgrade and installation schedule. Experience over the last two years since the plan was originally developed has shown that the current staff can handle most of the installation tasks, supported as needed by contract labor as intended.

4. Maintenance Staffing. Experience with the latest technology equipment has shown that the estimated number of 1 FTE per 100 equipped classrooms is still valid. However, at completion all 200 rooms will have an installed computer, which will stretch the resources of the OID Information Technology Services unit (the organization currently responsible for maintaining classroom computers.) It is likely that the responsibility for the computers will switch to the Educational Technology Innovations unit, which has trained Programmer/Analysts in place. An additional Programmer/Analyst may have to be hired, using classroom resources.

5. Auditorium Installations. The Plan called for multiple projectors and screens in each large auditorium on campus. Although the design of some of the rooms makes installation of this capability very challenging, new technologies now allow a single projector to create a split image generated from separate sources onto one large screen. The current auditorium standard, with a preliminary installation schedule, is attached as Appendix 2.

6. Webcasting Equipment. The Plan included installed equipment for course webcasting in many larger rooms, including Niagara web streaming encoders for video and Barix Instreamers for audio podcasting. Two additional years of the BruinCast program, including advances in affordable technology and increased student and faculty demand, have led to significant alterations in the methodology used to record and distribute course webcasts. Further information on course webcasting is available in the next section.

BruinCast Undergraduate Course Webcasting
The BruinCast undergraduate course webcasting program has grown from four courses offered to over 40 since the introduction of the first pilot test in Fall 2005. The current methodology is labor intensive, and while very popular with both students and faculty the Educational Technology Systems staff has been investigating other options for capturing and presenting classroom instruction. In Spring 2008, a second pilot test was run to evaluate rich media capture stations and automatic cameras to determine if greater efficiency will allow program expansion and increased educational satisfaction and outcomes. As the installation of automatic cameras has proved to be more challenging than anticipated, that portion of the project will be completed during the 2008-2009 academic year.

Current Methodology

- In room camera operator
- Single view
  - Camera shoots instructor, board, screen
- Some installed encoders, other rooms require post class encoding

Pros:
- Simple
- Inexpensive equipment
- Operator can shift focus and zoom where needed
- Viewed by students in commonly available software

Cons:
- Labor intensive
- Not scalable
- Scheduling difficulties

Proposed Upgrade: Rich Media (currently in testing)

- Multiple cameras can shoot instructor and boards
  - Possible use of automated cameras to follow instructor
  - Possible use of remote control cameras
  - Possible use of higher quality fixed cameras

- Multiple view
  - Instructor camera window
  - Data/video projector output window
    - Computer (PowerPoint)
    - Video (DVD/VHS)
    - Visual Presenter
  - Outline/notes window
  - Caption window
Pros:
- Potentially low labor requirements
- Enhanced presentation leads to increased utility
- Software interface integrates with Moodle (and other CMS) for search, archiving, retrieval, etc.
- Ability to create packaged or special presentations

Cons:
- Significantly more complex installation and networking
- Significantly increased expense per room
- Viewing software may not be as commonly available

The BruinCast program has made additional adjustments to the equipment used to support course webcasting, with greater variation based on room size and usage. The current equipment lists are attached as Appendix 3.

Further Information

OID Educational Technology Systems supports teaching at UCLA by providing and supporting a current, practical, functional, and user-friendly classroom instructional environment. The parameters of this mission and the solutions to achieve it are constantly changing. For the most current information on OID-ETS and UCLA General Assignment Classrooms please visit www.oid.ucla.edu.
Appendices

Appendix 1

(Classroom Equipment list coming)
Appendix 2

New Auditorium Standard

Educational Technology Systems plans to upgrade the largest general assignment classrooms on campus to a higher level of teaching functionality. These changes, defined below, will allow instructors to make use of advanced teaching technologies such as audience response systems, digital presenters, multiple sources, side-by-side comparisons, etc. Due to the cost and complexity of the installations, the new standards will be phased in over several years.

Current Installation

LaKretz 110

Planned Future Installations

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<tr>
<th>Room</th>
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</thead>
<tbody>
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<tr>
<td>Rolfe 1200</td>
<td>Summer 2011</td>
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<td>Dodd 147</td>
<td>Summer 2009</td>
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<td>Fowler A103B</td>
<td>Summer 2011</td>
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<td>Broad 2160</td>
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<td>Summer 2012</td>
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<td>Humanities 51</td>
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<td>Summer 2012</td>
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<tr>
<td>Haines 39</td>
<td>Summer 2010</td>
</tr>
<tr>
<td>P&amp;A 1425</td>
<td>Summer 2012</td>
</tr>
</tbody>
</table>

Standards

- Two projection screens, one large main in the center of the front wall and one smaller off to one side. Both screens should be visible from all seats in the room. Some rooms depending on design, may have a third screen fitted.
- Two data video projectors, one for the large center screen and one for the side screen. If three screens are fitted, then a third projector will also be installed.
- If there is not room for dual screens and projectors, one each will be installed and fitted with split image hardware.
- Double width media cabinet with multiple sources (DVD, VHS, Computer, laptop interface) and projector switching to allow any output to be shown on any screen.
Additional controls and computer inputs may be located on a permanent or movable teaching podium.

- A computer connected to the media system and the data network installed in the media cabinet with the keyboard on an articulated arm for standing or seated use. The monitor is replaced by an interactive pen display.
- An “electronic overhead projector” or digital presenter is provided for display of transparent or paper-based material. The output can be presented on a separate screen(s) to enable simultaneous use of the primary media system.
Appendix 3

(Webcasting Equipment list coming)