

***UCLA OFFICE OF INSTRUCTIONAL DEVELOPMENT  
EDUCATIONAL TECHNOLOGY SYSTEMS***

***ANNUAL REPORT 2010 - 2011***

***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. The report also describes the development issues facing the Educational Technology Systems (ETS) unit, current and upcoming projects, long-term plans, and information about procedures and equipment. The Educational Technology Systems unit consists of:

- Audio-Visual Services
- Classroom Technology Design and Maintenance
- Technology Mediated Instruction
  - BruinCast

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 various campus units including Capital Programs, Facilities, and the Registrar's Office to design, install, and maintain educational technology in General Assignment Classrooms. Technology Mediated Instruction (TMI) is the research, development and training unit of ETS. This unit investigates and implements technologies such as live streaming of courses, rich media presentation, enhanced podcasting, etc. TMI includes BruinCast, a service that records and webcasts undergraduate courses for use by students as a study aid.

## Classroom Equipment Statistics, as of Spring 2011

There have been approximately 200 General Assignment Classrooms available for instruction for the last several years. The number has varied as much as 5% annually due to construction, seismic retrofitting, and maintenance. In the last two years, three rooms have been permanently converted to departmental space, with only one replacement room provided. Additional conversions will make the availability of classrooms an issue.

- 99% have installed video playback equipment,
- 82% have installed data projection projectors,
- 62% have installed classroom computers,
- 33% have audio or video webcasting capability,
- 5% have installed document cameras,
- 2% have multiple projection capability.

Classroom Size	# of Rooms	Video Playback	Data Projection	Voice Amplification	Installed Computer	Webcast/ Podcast	Slide Projection	Document Camera	Multiple Projection
10-19	14	14	4	2	2	0	0	0	0
20-39	86	84	60	40	42	2	0	0	0
40-59	39	39	39	34	39	5	1	0	0
60-99	21	21	21	21	17	21	5	1	1
100-149	17	17	17	17	10	17	5	0	0
150-199	6	6	6	6	3	6	3	2	1
200-299	6	6	6	6	4	6	2	3	1
300+	7	7	7	7	5	7	5	4	1
<b>Totals</b>	<b>196</b>	<b>194</b>	<b>160</b>	<b>133</b>	<b>122</b>	<b>64</b>	<b>21</b>	<b>10</b>	<b>4</b>
<b>%</b>		<b>99%</b>	<b>82%</b>	<b>68%</b>	<b>62%</b>	<b>33%</b>	<b>11%</b>	<b>5%</b>	<b>2%</b>

### During the 2010 - 2011 Academic Year, OID...

- continued to install equipment to support the BruinCast course webcasting project, including audio-streaming devices in multiple additional rooms,
- upgraded twenty-five rooms to full technology classroom status, bnb h
- began the process to upgrade the teaching and learning technology installations in several large lecture halls (including Broad 2160E and Kinsey Pavilion 1200, 1220, and 1240),
- upgraded the OID-ETS Classroom to support investigation of the Active Learning Classroom concept,
- installed document cameras in additional rooms,
- continued the process of replacing legacy 4:3 format projection screens with a 16:9 or 16:10 format more suitable for digital projection,
- continued the process of replacing legacy analog control systems with current models capable of supporting digital formats,
- ran workshops, training, and events in the OID Training and Demonstration classroom in Powell Library,
- and continued to research and develop new classroom technologies to enhance instruction.

## **Classroom Projects 2010 - 2011**

### Classroom Equipment Enhancements

- Digital sources and switching, control, and projection screens to support them.
- Multiple Projectors – the addition of one or more projectors and screens to a room, allowing display from more than one source, will continue in large auditoriums.
- Document Cameras – intended to replace overhead projectors while providing the same function with additional enhancements, such as the ability to project three-dimensional objects.
- Touch Panel Control Systems – to simplify and reduce redundant controls, touch panel systems are being tested for specific multiple projector auditoriums.

### Installed Streaming Equipment

- Audio Streaming – installation of audio capture devices.
- Video Streaming – installation of video capture computers and infrastructure.
- Automatic / Remote Cameras – development and implementation of in-room cameras for either automated or remote video capture.

### Videoconferencing Installations

- Powell Library
  - Updating and replacing the outdated videoconferencing/distance learning equipment in Powell 285.
  - Installing videoconferencing/distance learning equipment in Powell 186.

### Classroom Equipment Refreshment

- Replaced Aging Projectors
- Upgraded Sound Systems
- Upgraded Wireless Microphone Systems

## **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, invest in emerging teaching and learning tools, and maintain them to current standards. The plan was funded beginning in the 2008-2009 fiscal year. The key points of the plan are:

- Classroom technology standards are those described in UCLA Classroom Standards, available on the OID website ([www.oid.ucla.edu](http://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. All UCLA Classrooms will meet these standards, when the plan is complete.
- Equipment is to be replaced on a regular cycle. Video projectors need to be replaced every 5 years. Media sources, 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, faculty input, and usage statistics.
- Some rooms, including the large auditoriums, may require a higher level of equipment than the standard to meet specialized teaching needs. The Auditorium Standard is included as Appendix 3.
- 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 auditoriums will receive equipment to enable audio webcasting.
- The plan does not account for changes in technology. As the plan approaches completion, the standards for each size and type of classroom will be evaluated for currency in light of the availability of newer teaching technologies.

A complete summary of the plan is available for viewing on the OID UCLA Classrooms Website, [www.oid.ucla.edu](http://www.oid.ucla.edu)

## **OID Educational Technology Systems Classroom Technology Plan Updates**

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 reassignment 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 and model numbers listed in the Cost Estimates page have been updated. An updated equipment list is attached as Appendix 2.
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 three years since the Plan was originally developed has shown that the current staff can handle most of the installation tasks, supported by contract labor as needed. This year, ETS piloted bringing in outside companies to help with the design phase of classroom construction. ETS has also contracted with a programmer to help pilot a new control system for the Powell 186 classroom.
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, the delegation of basic or daily maintenance issues (e.g. filter cleaning, projector lamp replacement) to the Audio Visual Services unit has allowed the current maintenance staffing level of 1 FTE to remain sufficient.
5. Classroom Computer Support. At completion of the installation plan, all 196 rooms will have an installed computer. Support of those computers, currently the responsibility of the OID Information Technology Services unit, will be shifted to the Technology Mediated Instruction unit, which is better suited for the task.
6. Auditorium Installations. The Plan calls for multiple projectors and screens in each large auditorium on campus. The current auditorium standard, with a preliminary installation schedule, is attached as Appendix 3.
7. Classroom Webcasting Installations. The Plan included the expansion of webcasting and podcasting equipment in classrooms. While this process continues, upgrading the current technology has also become a priority. Installed audio streaming appliances are still used for audio podcasting, while Apple Mac Mini computers running encoding software are used in place of dedicated video streaming equipment. Significant effort was also put into the research and development of a remote camera solution that will be deployed in 2011-2012. Infrastructure changes included delivering video exclusively with Microsoft's Smooth Streaming solution and the ability to support Apples iOS devices (iPad, iPhone, iPod). Staffing changes included enhancing the user experience and adding a full-time application developer to create systems that decrease delays in uploading.

The first stage of the Plan, completion of the presentation equipment installation in every UCLA General Assignment Classroom, will be achieved in December, 2012. At that time, a new Plan will be presented to ensure that UCLA classrooms will be optimally equipped to take advantage of developments in pedagogy and technology.

## **OID Educational Technology Systems Technology Outlook**

As the Classroom Technology Business Plan continues towards completion, the majority of the rooms that remain are of lower capacity and a consistent design. Thus, over the course of 2011 - 2012, Educational Technology Systems continues to prepare for the development of the second phase of the Plan, focusing more on maintenance, upgrades, equipment refreshment, and innovation.

### **Projection and Display**

Educational Technology Systems will continue to install single projectors, in most classrooms, with sufficient resolution and power to enable full lighting levels during presentation. Larger classrooms will be evaluated for multiple projector capability. For classrooms where multiple projectors are not an option, ETS will continue to explore allowing a single projector to display two (or more) sources. Current display screens in classrooms will be upgraded to support this technology, as well as shift to HD (High Definition) aspect ratio. The move to HD, along with the increasing need for projecting from digital sources, has resulted in requiring an evaluation of the projection screens in virtually every classroom. Many of the older 4:3 ratio screens will need to be replaced, which will increase costs for both the purchase and installation of equipment as rooms are upgraded.

### **Control and Support**

ETS made a significant effort to install the same control interface in all equipped classrooms. This has provided great benefits in that faculty have little to no learning curve when moving from room to room and ETS-Maintenance can repair and replace equipment on a very short timeframe. Also, the current equipment allows remote troubleshooting and assistance, enabling a reduction in staff while increasing service levels.

However, more advanced multiple projection classrooms require a control system that can simplify the operation of the equipment, as well as reduce the footprint of the control system in the media cabinet. ETS will be introducing touch-screen control systems in specific classrooms with the goal of making the experience even more user-friendly while providing more advanced functions.

### **Media Sources**



Currently, each classroom is equipped with an interface for connection of the instructor's laptop, a combination dvd/vhs player, and a composite input for connecting audio or video external devices. In addition, most classrooms have installed computers and either an overhead projector or a digital presenter.

As some technologies become obsolete and are replaced by newer varieties, ETS must balance being up-to-date with awareness that many instructors continue to use curriculum components in legacy formats. ETS has been evaluating whether the analog composite input should be replaced with a digital input to support newer media devices and will be introducing rooms next year with HDMI inputs. Likewise, the first Blu-Ray players will be installed, as part of a Blu-Ray / DVD / VHS player. Additionally, the VGA port is expected to be phased out of all main PC laptop brands within the next couple of years. ETS will be researching the various digital outputs (e.g. DVI, HDMI, Display Port) to help find the most appropriate replacement for computer signals.

### **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](http://www.oid.ucla.edu).

**Appendices****Appendix 1 - General Assignment Classroom Status, As of 6/30/2011**

<b>Cap:</b>	<b>Room:</b>	<b>Cap:</b>	<b>Room:</b>	<b>Cap:</b>	<b>Room:</b>	<b>Cap:</b>	<b>Room:</b>
419	Moore 100	71	Boelter 2760	39	Boelter 5422	24	Franz 2288
405	BAC 2160E	68	Haines A25	38	MS 5118	24	Haines A76
371	Haines 39	67	Dodd 170	37	Bunche 2178	24	Humanities A32
366	Dodd 147	65	Dodd 167	37	Bunche 3143	24	Humanities A46
352	LaKretz 110	65	Boelter 5440	37	Bunche 3153	24	Humanities A48
352	Young CS50	61	Young 4216	37	Royce 150	24	Humanities A66
320	Fowler A103B	60	Pub Aff 2250	36	Bunche 3150	24	Humanities A68
293	Franz 1178	57	Pub Aff 2232	36	Rolfe 3135	24	Kaufman 153
292	Rolfe 1200	55	Geology 4660	35	Young 1044	24	MS 3915A
290	Humanities A51	54	Kaufman 101	34	Bunche 1221A	24	MS 3915D
239	Young CS24	52	Dodd 78	32	Boelter 5252	24	MS 3915G
229	Young CS76	52	Royce 156	32	Dodd 154	24	MS 3915H
210	MS 4000A	51	Boelter 5436	32	Dodd 162	22	Bunche A152
193	PAB 1425	51	MS 6229	32	Dodd 178	22	LaKretz 101
181	Bunche 1209B	50	Haines A44	32	Humanities A26	22	LaKretz 100
177	Bunche 2209A Kinsey Pavilion	50	Rolfe 3126	32	Pub Aff 1256	22	MS 7608
171	1220B	50	Royce 164	32	Pub Aff 1264	20	Bunche 2121
167	Boelter 3400	48	Boelter 5264	32	Pub Aff 1270	20	Haines A6
157	Dodd 121	48	Boelter 9436	32	Pub Aff 1278	20	Haines A20
148	Perloff 1102	48	PAB 2434	32	Pub Aff 1284	20	Haines A28
147	Franz 1260	48	Pub Aff 1337	32	Pub Aff 1323	20	Haines 110
144	Haines 118	48	Royce 154	32	Pub Aff 1329	20	Haines 122
144	Haines 220	47	Bunche 3211	32	Pub Aff 1343	20	Humanities A40
141	Haines A18	47	Pub Aff 2238	32	Pub Aff 2278	20	Humanities A56
131	Royce 362	46	LaKretz 120	32	Pub Aff 2284	20	Humanities A60
130	MS 5200	45	Pub Aff 2242	32	Pub Aff 2317	20	Rolfe 3112
129	Haines A2	45	Royce 162	32	Pub Aff 2319	20	Rolfe 3114
120	Royce 190 Kinsey Pavilion	44	Bunche 3178	32	Pub Aff 2325	20	Rolfe 3115
117	1200B Kinsey Pavilion	43	Geology 6704	32	Pub Aff 2333	20	Rolfe 3118
117	1240B	43	PAB 2748	30	Botany 133	20	Rolfe 3119
115	Humanities A65	43	Royce 160	30	MS 5148	20	Rolfe 3120
115	Humanities 135	42	Geology 4645	30	MS 5203	20	Slichter 2834
115	Humanities 169	42	MS 5128	30	Rolfe 3105	19	Royce 166
106	Dodd 161	42	MS 5137	29	Boelter 4283	16	Bunche 1265
103	Pub Aff 1246	42	MS 5138	29	Royce 148	16	Bunche 2150
101	Fowler A139	42	MS 5147	28	Boelter 4413	16	Bunche 2173
98	Dodd 175	42	Rolfe 3134	28	MS 6201	16	Bunche 2174
98	Pub Aff 1222	41	Boelter 5273	28	MS 5225	16	Haines A78
98	Pub Aff 1234	41	Bunche 3157	28	MS 5233	16	Humanities A30
95	PAB 1434A	40	Bunche 2160	27	MS 5217	16	Pub Aff 2292
92	Boelter 5249	40	Bunche 3156	26	Bunche 2156	13	Boelter 5514

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89	Pub Aff 2214	40	Bunche 3164	26	Bunche 2168	13	Rolfe 3123
86	Geology 3656	40	Bunche 3170	26	Bunche 2181	13	Rolfe 3127
84	Young 2200	40	MS 5117	26	Bunche 3117	13	Rolfe 3131

<u>Cap:</u>	<u>Room:</u>	<u>Cap:</u>	<u>Room:</u>	<u>Cap:</u>	<u>Room:</u>	<u>Cap:</u>	<u>Room:</u>
82	Franz 2258A	40	MS 5127	26	Bunche 3123	12	Kaufman 136
81	Dodd 146	40	PAB 1749	26	Haines A74	11	Rolfe 3106
80	Boelter 2444	39	Boelter 5272	25	Haines A24		
79	Botany 325	39	Boelter 5280	25	Haines A82		GRN – FY 11/12
79	BAC 2100A	39	Boelter 5419	25	Moore 1003		RED – FY 12/13
78	Pub Aff 2270	39	Boelter 5420	25	Royce 152		

**Appendix 2 – Classroom Equipment Costs**

Seminar Rooms, Category S	Current Model/Vendor	2011 Purchase Cost
Projector	Epson 6110p	\$2,000
Media Sources and Controls	Extron	\$5,500
Sound Systems and Speakers	JBL	\$1,000
Screen	Da-Lite	\$300
Visual Presenter	AVerMediaSPB370	\$3,000
Classroom Computer	Dell	\$2,000
Classrooms, Category C	Current Model/Vendor	2011 Purchase Cost
Projector	Panasonic PT-FW430U	\$2,000
Media Sources and Controls	Extron	\$6,500
Sound Systems and Speakers	JBL	\$2,500
Screen	Da-Lite	\$1,000
Visual Presenter	WolfVision VZ-3	\$4,000
Classroom Computer	Dell	\$2,500
Lecture Halls, Category L	Current Model/Vendor	2011 Purchase Cost
Projector	Panasonic PT-DZ6700UL	\$8,500
Media Sources and Controls	Extron	\$8,300
Sound Systems and Speakers	JBL	\$2,000
Screen	Stewart	\$5,500
Visual Presenter	WolfVision VZ-3	\$4,000
Classroom Computer	Dell	\$2,500
Auditoriums, Category A	Current Model/Vendor	2011 Purchase Cost
Projector	Panasonic PT-DZ8700	\$32,000
Additional Projector	Panasonic PT-DZ6700UL	\$8,500
Main Media Sources and Controls	Extron	\$12,500
Multiple Projector Media Controls	Extron	\$4,500
Sound Systems and Speakers	JBL	\$4,500
Main Screen	Stewart	\$9,500
Auxiliary Screen	Stewart	\$5,500
Visual Presenter	WolfVision VZ-3	\$4,000

## Appendix 3 - Auditorium Standards

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 and projectors, 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 Projects

Broad 2160E  
 Kinsey Pavilion 1200B  
 Kinsey Pavilion 1220B  
 Kinsey Pavilion 1240B

### Planned Future Installations

Haines 39	Spring 2012
Fowler A103B	Summer 2012
Dodd 147	Summer 2012

### Standards

- Three projection screens, one large main screen in the center of the front wall and two smaller screens on each side. The center screen should be visible from all seats in the room, while each side screen is visible to primarily its half of the classroom since both side screens display the same image. Some rooms, depending on design, may have just a second screen installed.
- Three data video projectors, one for the large center screen and two for the side screens. If two screens are fitted, then no more than two projectors will be installed.
- If there is not room for dual screens and projectors, a single system will be installed and fitted with split image hardware.
- A media cabinet with multiple sources (Blu-Ray / DVD, VHS, computer, laptop interface) and projector switching to allow any output to be displayed on any screen. Additional controls and computer / digital 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.

- 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.