Chairs' & Center Directors' Meeting Minutes

Date: December 16, 2013 (12:00 to 2:00 pm)
Location: WCH – Room 443
Attendees: Abbaschian, Reza
Aguilar, Guillermo
Balandin, Alex
Barth, Matt
Boretz, Mitch
Farrell, Jay
Garay, Javier
Haddon, Robert
Hartney, Pat
Matsumoto, Mark
Myung, Nosang
Ravi
Rodgers, Victor
Souder, Maggie
Vernon, Russ

Absent: Bhanu, Bir
Bhuyan, Laxmi
Najjar, Walid
Tan, Sheldon
Vafai, Kambiz
Wang, Albert

The agenda for the meeting is shown in Appendix 1.

1. Welcome and call for agenda items - Reza
Nosang added the topic of Course Enrollment Projections to the agenda.

2. Approval of Minutes - Pat
The minutes of the December 2nd Chairs/Directors meeting were unanimously approved.

3&4. Updates from Chairs and Directors
BIEN: Victor reported that the research faculty search is moving forward. Also, freshmen BIEN student design projects were presented last week. Next year, the department will move this design project course from freshmen year to sophomore year. It is hoped that this course and the senior design course will enable BIEN students to compete at national project competitions. Lastly, Prof. Anvari has been elected as a fellow of the SPIE Association.

CEE: Nosang reported that the junior faculty hire search committee will be meeting tomorrow. Also, the department is interested making an offer to an NAE member that is retiring from the faculty at UCB. A campus

visit is scheduled for 1/31/13 and Nosang encourages BCOE Chairs to meet with this candidate on that day. Since he will be receiving full retirement pay from UCB, an appropriate UCR appointment could be Grad Professorship.

CE-CERT: Matt mentioned that CE-CERT will be meeting with the School of Medicine to discuss their joint research faculty search.

MSE: Javier stated that the joint faculty searches are on-going. Also, MSE faculty will participate in an NSF grant in Materials being awarded through the Physics department.

CNSE: Robert stated that the MS&E Building's Clean Room will not be opening this calendar year. Also, comments received on the unsuccessful MRSEC proposal indicated that it needed to be more transformative.

POEM: Alex reported that the center's initial equipment purchases are being delivered. An MRI proposal is being prepared along with a DOE Center proposal. Lastly, significant publicity for BCOE was gained with Alex's 2013 MRS Medal award at the recent MRS Meeting.

ME: Guillermo stated that the research scientist faculty search with BIEN is progressing. Also, letters are being requested for the senior faculty hire candidate. In addition, a recent seminar speaker from Georgia Tech will be encouraged to apply for the junior faculty position. There are 131 applications for the junior faculty hire and 40-45 applications for the senior hire. These applications will be reviewed by the search committees during the holidays.

EE: There are 40-45 applications for the junior faculty position. Walid is inviting candidates to campus for the senior faculty position.

5. Graduate Education – Mark

Mark distributed a document that compares the numbers of graduate applications started and submitted between the 2013-14 and 2014-15 cohorts. The number of 2014-15 applications started is about the same number as last year. The number of domestic applications started increased by about 3% from last year. However, the number of 2014-15 applications submitted is about 18% lower than last year. Applications submitted in BEIN and ME decreased by 42% and 41% respectively. Denise has sent messages through Hobsons to applicants that haven't submitted their applications yet encouraging them to complete their applications. The deadline for Financial Aid is 1/5/14.

6. Undergraduate Education – Ravi

Ravi pointed out the freshmen application data summary attached to the agenda. Ravi stated that this year's BCOE incoming freshmen AIS cut-off score has been increased to 4,500 (the highest at UCR). BCOE's incoming (CA resident) freshmen initial target has been decreased to 400 this year from 500 last year. Ravi noted that the number of total UCR freshmen applications is about the same as last year but BCOE's figure is up by 9.5%. The second portion of the document presents the numbers of applicants with AIS scores above 4,500 for BCOE and 4,200 for CNAS and CHASS. The number of BCOE's CA resident applicants with AIS scores above 4,500 is 1,321 which equals about 1/3rd of BCOE's total admits last year. Also, Ravi distributed a summary of current undergrad enrollments for each BCOE department. There are 715 BCOE seniors this year due to the large incoming freshmen cohort three years ago. The total number of BCOE freshmen is 621 which is significantly higher than last year's (revised) incoming freshmen target of 490. Ravi asked each department to review its 2014-15 incoming freshmen target in light of the lower overall BCOE target of 400. Victor responded that BIEN's target will be 50. Nosang added that Chemical Engineering and Environmental

Engineering targets are 50 each. It was noted that transfer students have a more immediate impact on departments than incoming freshmen. CEE is facing this problem this year due to the unexpectedly large number of transfer students that enrolled in the department. Reza added that the quality of incoming BCOE freshmen is increasing which should increase retention. Also, he noted that UCR now wants to decrease the number of unfunded students so BCOE may not be pressured to increase its enrollment target this year. On another issue, Nosang asked if BCOE Student Affairs could provide projections for core course enrollments. Ravi responded that the optimal scheduling program being developed by BCOE Student Affairs is not yet available. Currently, students provide input on courses they expect to take for the next two terms. However, this information is not always accurate. After discussion, Ravi will ask BCOE Student Affairs to provide enrollment projections for core courses to departments at the beginning of each term.

7. UCOP Lab Coats/Protective Eye Wear – Russ Vernon

Russ and Maggie joined the meeting for this topic. Russ provided copies of the following documents:

- 11/26/13 email from Russ to UCR Deans re: free lab coats and eye protection
- Cal/OSHA regulation 3380 (Personal Protective Devices)
- UCR Laboratory Hazard Assessment Tool Process Flow for Faculty
- Laboratory Hazard Assessment Tool (LHAT) questionnaire
- Powerpoint presentation on Laboratory Safety & Environmental Compliance

Russ stated that Cal/OSHA developed a new Personal Protective Devices regulation in 2011 after the lab employee death at UCLA. In response to this new Cal/OSHA regulation, UCOP provided funding to develop an on-line tool, the Laboratory Hazard Assessment Tool (LHAT). UCOP is providing $4M for lab coats and eye protection as incentives for faculty and lab staff to use this new software tool. Each faculty/lab supervisor needs to log into LHAT to establish lab groups and invite people to these groups. Also, a hazard assessment for each lab group needs to be established and certified. After which, each lab member can take the brief Personal Protective Equipment (PPE) training required by the assessment. Each lab member can then print a voucher for free PPE at the January 14-15, 2014 distribution event at UCR. UCOP funding for this free PPE ends on 6/30/14 but Russ has requested continuing funding from UCR. Maggie added that LHAT will be discussed at the next BCOE LSO Meeting, scheduled for Friday (12/20/13). In response to questions, Russ stated that PPE is not required for tours (approved by faculty and departments) of research labs by minors (i.e., prospective students, high-school students, etc.). Reza asked Chairs to encourage their faculty to sign-up for LHAT.

8. Other Matters

No other topics were discussed.

UNIVERSITY OF CALIFORNIA
UC RIVERSIDE
BOURNS COLLEGE OF ENGINEERING

Chairs' & Center Directors' Meeting

December 16, 2013
Agenda

Winston Chung Hall – Room 443

1.	Welcome - Request for Agenda Items from the Floor	Reza
2.	Approval of Minutes from November 15, 2013 Meeting	Pat
3.	Department & Search Updates	Chairs
4.	Center Updates	Directors
5.	Graduate Education	Mark
6.	Undergraduate Education/Freshmen Targets	Ravi
7.	UCOP Lab Coats/Protective Eye Wear	Russ Vernon
8.	Other Matters	

Future Meeting Dates

2013

~~Monday, August 5~~
~~Monday, September 9~~
~~Friday, September 27~~
~~Friday, October 11~~
~~Monday, October 21~~
~~Friday, November 15~~
~~Monday, December 2~~
~~Monday, December 16~~

2014

Friday, January 10
Monday, January 27
Monday, February 10
Friday, February 21
Monday, March 3
Monday, March 17
Monday, March 31
Monday, April 14
Monday, April 28
Monday, May 12
Monday, May 26
Monday, June 9
Monday, June 23
Monday, July 7

2014-15 COHORT 12/16/2013 **APPLICATIONS STARTED**

Program	International			Domestic			All		
	MS	PHD	Total	MS	PHD	Total	MS	PHD	Total
BIEN	26	35	61	21	33	54	47	68	115
CEE	43	72	115	22	31	53	65	103	168
CEN	48		48	4		4	52	0	52
CPSC	321	145	466	32	26	58	353	171	524
ELEN	236	137	373	26	10	36	262	147	409
MSOL	0		0	0		0	0	0	0
MSE	26	55	81	4	16	20	30	71	101
MCEN	39	36	75	20	18	38	59	54	113
BCOE	739	480	1219	129	134	263	868	614	1482

2013-14 COHORT 12/17/2012 **APPLICATIONS STARTED**

Program	International			Domestic			All		
	MS	PHD	Total	MS	PHD	Total	MS	PHD	Total
BIEN	20	23	43	33	38	71	53	61	114
CEE	32	87	119	16	27	43	48	114	162
CEN	30		30	8		8	38	0	38
CPSC	306	141	447	29	19	48	335	160	495
ELEN	263	146	409	22	17	39	285	163	448
MSOL	0		0	0		0	0	0	0
MSE	30	44	74	11	12	23	41	56	97
MCEN	51	43	94	12	11	23	63	54	117
BCOE	732	484	1216	131	124	255	863	608	1471

ONE-YEAR CHANGE **APPLICATIONS STARTED**

Program	International			Domestic			All		
	MS	PHD	Total	MS	PHD	Total	MS	PHD	Total
BIEN	30%	52%	42%	-36%	-13%	-24%	-11%	11%	1%
CEE	34%	-17%	-3%	38%	15%	23%	35%	-10%	4%
CEN	60%		60%	-50%		-50%	37%		37%
CPSC	5%	3%	4%	10%	37%	21%	5%	7%	6%
ELEN	-10%	-6%	-9%	13%	-41%	-8%	-8%	-10%	-9%
MSOL	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!
MSE	-13%	25%	9%	-64%	33%	-13%	-27%	27%	4%
MCEN	-24%	-16%	-20%	67%	64%	65%	6%	0%	-3%
BCOE	1%	-1%	0%	-2%	3%	3%	1%	1%	1%

2014-15 COHORT 12/16/2013 **APPLICATIONS SUBMITTED**

Program	International			Domestic			All		
	MS	PHD	Total	MS	PHD	Total	MS	PHD	Total
BIEN	10	9	19	4	11	15	14	20	34
CEE	12	37	49	7	23	30	19	60	79
CEN	15		15	1		1	16	0	16
CPSC	101	58	159	15	11	26	116	69	185
ELEN	74	72	146	10	4	14	84	76	160
MSOL	0		0	0		0	0	0	0
MSE	10	22	32	0	4	4	10	26	36
MCEN	11	8	19	6	4	10	17	12	29
BCOE	233	206	439	43	57	100	276	263	539

2013-14 COHORT 12/17/2012 **APPLICATIONS SUBMITTED**

Program	International			Domestic			All		
	MS	PHD	Total	MS	PHD	Total	MS	PHD	Total
BIEN	8	9	17	18	24	42	26	33	59
CEE	3	55	58	8	12	20	11	67	78
CEN	12		12	2		2	14	0	14
CPSC	141	60	201	12	9	21	153	69	222
ELEN	116	60	176	6	10	16	122	70	192
MSOL	0		0	0		0	0	0	0
MSE	12	19	31	3	5	8	15	24	39
MCEN	15	21	36	6	7	13	21	28	49
BCOE	307	224	531	55	67	122	362	291	653

ONE-YEAR CHANGE **APPLICATIONS SUBMITTED**

Program	International			Domestic			All		
	MS	PHD	Total	MS	PHD	Total	MS	PHD	Total
BIEN	25%	0%	12%	-78%	-54%	-64%	-46%	-39%	-42%
CEE	300%	-33%	-16%	-13%	92%	50%	73%	-10%	1%
CEN	25%		25%	-50%		-50%	14%		14%
CPSC	-28%	-3%	-21%	25%	22%	24%	-24%	0%	-17%
ELEN	-36%	20%	-17%	67%	-60%	-13%	-31%	9%	-17%
MSOL	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		#DIV/0!
MSE	-17%	16%	3%	-100%	-20%	-50%	-33%	8%	-8%
MCEN	-27%	-62%	-47%	0%	-43%	-23%	-19%	-57%	-41%
BCOE	-24%	-8%	-17%	-22%	-15%	-18%	-24%	-10%	-17%

College	CA RESIDENT FRESHMAN APPLICATION											
	Fall 2011	% Fall 2011	Fall 2012	% Fall 2012	Fall 2013	% Fall 2013	Fall 2014	% Fall 2014	11F-14F Diff	11F-14F %Change	13F-14F Diff	13F-14F %Change
College of Engineering	3,537	14.24%	4,264	15.37%	4,966	16.10%	5,438	17.59%	1,901	53.75%	472	9.50%
College of Humanities, Arts and Social Sciences	12,188	49.08%	13,278	47.88%	14,728	47.76%	14,304	46.27%	2,116	17.36%	-424	-2.88%
College of Natural and Agricultural Sciences	9,106	36.67%	10,192	36.75%	11,143	36.14%	11,173	36.14%	2,067	22.70%	30	0.27%
Total	**24,831**	**100.00%**	**27,734**	**100.00%**	**30,837**	**100.00%**	**30,915**	**100.00%**	6,084	24.50%	78	0.25%

	BCOE (AIS 4500)	CNAS (AIS 4200)	CHASS (AIS 4200)
CA Resident	1321	4449	3922
International	23	48	65
Out of State	41	73	103
TOTAL	**1385**	**4570**	**4090**

Department	Freshman	Sophomore	Junior	Senior	Total
Bioengineering	77	71	81	113	**342**
Chemical and Environmental Engineering	115	83	110	137	**445**
College of Engineering	35	32	17	34	**118**
Computer Science	166	133	139	165	**603**
Electrical Engineering	104	63	65	92	**324**
Mechanical Engineering	124	119	119	174	**536**
Total	**621**	**501**	**531**	**715**	**2368**

Program	F'13 Target
BIEN	50
BUNF	15
CEN	60
CHEN	60
ELEN	75
ENCS	60
ENEN	60
MCEN	90
MSE	20
Total	**490**

Russell Vernon

From:	Russell Vernon
Sent:	Tuesday, November 26, 2013 7:30 AM
To:	'reza.abbaschian@ucr.edu'; Marylynn V Yates; Stephen E Cullenberg; G Richard Olds
Cc:	Dallas L Rabenstein; Monica J Carson; Craig V Byus; Sharon Shanahan; Katherine A Kinney; Shaun Bowler; Jocelyn L Nakashige; Sharon Berg; Susan M Miller; Bill Kidder; Peter Atkinson; Jodie S Holt; Cynthia Larive, Chair (cynthia.larive@ucr.edu); Michael A McKibben; Millie Garrison; 'pat@engr.ucr.edu'; 'matsumot@engr.ucr.edu'; Karen E Janiga
Subject:	UCOP is providing free lab coats and eye protection as incentive...

Dear Dean Abbaschian, Dean Yates, Dean Cullenberg and Vice Chancellor of Health Affairs Olds,

Please share the following information with your lab faculty:

UCOP is providing free lab coats and eye protection as incentive for faculty and lab folks to use this software tool

State regulation requires the employer to assess the workplace to determine if hazards are present, or are likely to be present, which require the use of personal protective equipment (PPE). The regulations also obligate the employer to provide the PPE at no cost to the employee; ensure it fits, provide training on when they need to use it, how to use it, how to care for it and clean or dispose of it.

The University California created a policy to clarify the institutional process for compliance. In the policy the responsibility for the workplace hazard assessment is assigned to each supervisor.

For laboratories, the UC Office of the President Risk Services funded the creation of an assessment tool, providing a mechanism to achieve compliance. The Laboratory Hazard Assessment Tool (LHAT) was developed by a multi-campus faculty committee, led by a Craig Merlic, an organic chemistry faculty member of the UCLA campus who experienced the version used there and had a passion to make it easier to use and more robust. The LHAT can be used to identify hazards and determine what PPE should be used to work safely.

The Process:

Step 1. Each Faculty/Laboratory Supervisor logs into the Laboratory Hazard Assessment Tool via http://ehs.ucr.edu/laboratory/lhat with your UCR Net ID and password.

a. Manage your profile – establish your identity
b. Add a lab group, you give it a name, phone number and select the buildings and room numbers to be included.
c. Manage Roster - invite people to your lab, designate any delegates by changing their permissions
d. If desired, delegate a lab member to complete a hazard assessment or conduct a hazard assessment yourself for this group of rooms, choosing from a list of activities
e. Next certify the assessment and all your lab group members can review
f. Each lab group member including the supervisor will need take the brief training on the use of PPE, then print a voucher for **free PPE at the January 14/15 2014 distribution event**

g. Each lab group member and supervisor will want to select an appointment time through https://ucr-ppe.eventbrite.com and come to the fitting event to get a lab coat that fits them perfectly.

The deadline to complete the LHAT and register for the two-day fitting/distribution event is January 10, 2013.

For more information and guidance go to: http://ehs.ucr.edu/laboratory/lhat

If you have any questions about the LHAT system (log in issues, data entry issues), please contact the UC ERM Service Desk at em@ucop.edu. Any other questions can be directed to Karen Janiga, Research Safety Manager, at Karen.janiga@ucr.edu, or 951-827-5748.

Sincerely,
-Russ

p.s. If you want to 'poke around' with the system without fear of making a mistake go to: https://ehs.ucop.edu/lhat-demo. You will be able to see what each of the three roles involved in the system have; the PI, Lab worker and EH&S

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Taking a trip overseas?
Access Location Intelligence: https://ermsp.ucop.edu/uctrip and enter your UC Net ID

California Code of Regulations
Title 8, Chapter 4. Division of Industrial Safety,
Subchapter 7. General Industry Safety Orders
Group 2. Safe Practices and Personal Protection
Article 10. Personal Safety Devices and Safeguards

§3380. Personal Protective Devices

(a) Protection where modified by the words head, eye, body, hand, and foot, as required by the orders in this article means the safeguarding obtained by means of safety devices and safeguards of the proper type for the exposure and of such design, strength and quality as to eliminate, preclude or mitigate the hazard.

Note: In order that safety devices or safeguards, which may include personal protective equipment, be acceptable as to proper type, design, strength and quality they shall be at least equivalent to those complying with the standards approved by The American National Standards Institute, Bureau of Standards, or other recognized authorities, except that where no authoritative standard exists for a safety device or safeguard, the use of such safeguard or safety device shall be subject to inspection and acceptance or rejection by the Division.

(b) Protective equipment shall be distinctly marked so as to facilitate identification of the manufacturer.

Exception: Employer manufactured shields, barriers, etc.

(c) The employer shall assure that the employee is instructed and uses protective equipment in accordance with the manufacturer's instructions.

(d) The employer shall assure that all personal protective equipment, whether employer-provided or employee-provided, complies with the applicable Title 8 standards for the equipment. The employer shall assure this equipment is maintained in a safe, sanitary condition.

(e) Protectors shall be of such design, fit and durability as to provide adequate protection against the hazards for which they are designed. They shall be reasonably comfortable and shall not unduly encumber the employee's movements necessary to perform his work.

(f) Hazard assessment and equipment selection.

(1) The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the employer shall:

(A) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;

(B) Communicate selection decisions to each affected employee; and,

(C) Select PPE that properly fits each affected employee.

Note: Non-mandatory Appendix A contains an example of procedures that would comply with the requirement for a hazard assessment.

(2) The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard

assessment; and, which identifies the document as a certification of hazard assessment.

(3) Defective and damaged equipment. Defective or damaged personal protective equipment shall not be used.

(4) Training. The employer shall provide training to each employee who is required by this section to use PPE. Each such employee shall be trained to know at least the following:
(A) When PPE is necessary;
(B) What PPE is necessary;
(C) How to properly don, doff, adjust, and wear PPE;
(D) The limitations of the PPE; and,
(E) The proper care, maintenance, useful life and disposal of the PPE.

(5) Each affected employee shall demonstrate an understanding of the training specified in subsection (f)(4) of this section, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

(6) When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by subsection (f)(5) of this section, the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:
(A) Changes in the workplace render previous training obsolete; or
(B) Changes in the types of PPE to be used render previous training obsolete; or
(C) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

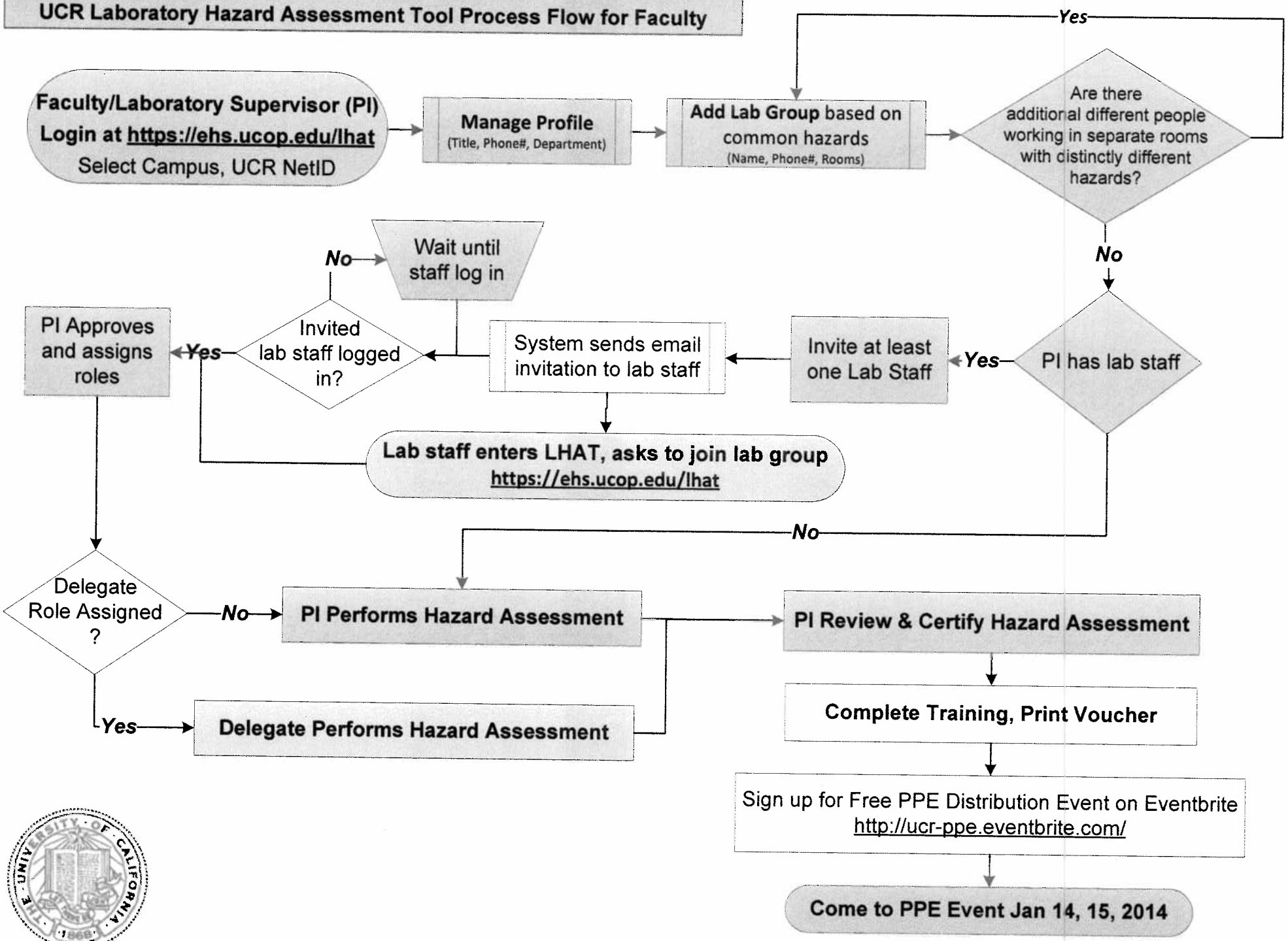
(7) The employer shall verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification.

(8) Subsections (f)(1) and (2) and (f)(4) through (7) of this section apply only to Sections 3381, 3382, 3384 and 3385 of these Orders. Subsections (f)(1) and (2) and (f)(4) through (7) of this section do not apply to Section 5144 of these Orders and Section 2940.6 of the High Voltage Electrical Safety Orders. Subsection (f) does not apply to workplace operations regulated by the Construction Safety Orders or the Mine Safety Orders.

Note: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer and new section filed 7-11-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment of subsection (c) filed 4-27-79; effective thirtieth day thereafter (Register 79, No. 17).
3. Amendment of subsection (d) and amendment of Note filed 12-30-2004; operative 1-29-2005 (Register 2004, No. 53).
4. New subsections (f)-(f)(8) filed 4-13-2011; operative 4-13-2011. Submitted to OAL for filing with the Secretary of State and printing only pursuant to Labor Code section 142.3(a)(3) (Register 2011, No. 15).

TITLE

UCR Laboratory Hazard Assessment Tool Process Flow for Faculty



For more information, please contact Karen Janiga (951)-827-5748 karen.janiga@ucr.edu

Laboratory Hazard Assessment Tool

Introduction

This paper version of the on-line tool allows easy review of the questions and personal protective equipment guidance

All Laboratories

Response	Lab Activity
○ Yes ○ No	This laboratory has been ***designated and posted as free*** of chemical, physical, biological, radiological, laser, and non-ionizing hazards. ***Skip all other sections.***

Chemical Hazards

❑ I certify that all activities listed in the Chemical Hazards section below are NOT conducted in this laboratory.

#	Lab Activity: *working with:*	?	Potential Known Hazards	Active Researchers PPE	Adjacent Individuals PPE
C1	**hazardous chemicals** (solid, liquid, or gas)	○ Yes ○ No	• Eye or skin damage • Potential poisoning through skin contact	• Chemical splash goggles for larger volumes • Safety glasses • Lab coat • Chemical-resistant gloves • Chemical-resistant apron should be considered • Face shield should be considered	• Safety glasses • Lab coat
C2	**hazardous liquids** or other materials which create a **splash hazard**	○ Yes ○ No	• Eye or skin damage • Poisoning	• Lab coat • Chemical-resistant gloves • Chemical splash goggles	• Safety glasses • Lab coat
C3	**small** volumes (<= 4L) of **corrosive liquids or solids**	○ Yes ○ No	• Low probability for a splash hazard • Eye or skin damage	• Safety glasses • Lab coat • Chemical-resistant gloves	• Safety glasses • Lab coat

C4	**large** volumes (> 4L) of **corrosive liquids or solids**	❍ Yes ❍ No	• High probability for a splash hazard • Eye or skin damage	• Lab coat • Chemical-resistant apron • Chemical-resistant gloves • Chemical splash goggles	• Lab coat • Chemical splash goggles
C5	**small** volumes (<= 1L) of **flammable** solvents/materials when **no** reasonable **ignition sources** are present	❍ Yes ❍ No	• Eye or skin damage • Potential poisoning through skin contact	• Safety glasses • Lab coat • Chemical-resistant gloves	• Safety glasses • Lab coat
C6	**large** volumes (> 1L) of **flammable** solvents/materials	❍ Yes ❍ No	• Major skin or eye damage • Major fire • Potential poisoning through skin contact	• Flame-resistant outer gloves should be considered • Safety glasses • Chemical-resistant gloves • Flame resistant lab coat (NFPA 2112)	• Safety glasses • Lab coat
C7	any quantity of flammable solvents or materials when there are reasonable **ignition sources present**; or working in areas where **flammable concentrations of vapors** or gas may be present	❍ Yes ❍ No	• Major skin or eye damage • Major fire • Potential poisoning through skin contact	• Flame-resistant outer gloves highly recommended • Safety glasses • Chemical-resistant gloves • Flame resistant lab coat (NFPA 2112)	*All in room:* • Safety glasses • Flame resistant lab coat (NFPA 2112)

C8	Category 1 or 2 acutely toxic chemica's	○ Yes ○ No	• Chemicals pose a high level of immediate health risk • Spills, splashes, ingestion, inhalation, absorption	• Safety glasses • Lab coat • Chemical-resistant gloves • Chemical protective apron	• Safety glasses • Lab coat
C9	known or suspect human carcinogens	○ Yes ○ No	• High hazard cancer-causing agents • Spills, splashes, ingestion, inhalation, absorption	• Safety glasses • Lab coat • Chemical-resistant gloves	• Safety glasses • Lab coat
C10	reproductive hazard chemicals (including reproductive toxicants and germ cell mutagens)	○ Yes ○ No	• Agents that affect reproductive capabilities, cause mutation and adversely affect fetal development • Spills, splashes, ingestion, inhalation, absorption	• Safety glasses • Lab coat • Chemical-resistant gloves	• Safety glasses • Lab coat
C11	pyrophoric (air reactive) chemicals or chemicals that in contact with water release flammable gasses (water reactive)	○ Yes ○ No	• Fire • Severe skin and eye damage	• Flame-resistant outer gloves should be considered • Face shield should be considered • Safety glasses • Chemical-resistant gloves • Flame resistant lab coat (NFPA 2112) • Note: Work in inert atmosphere when possible	*All in room:* • Safety glasses • Flame resistant lab coat (NFPA 2112)

C12	potentially explosive chemicals	○ Yes ○ No	• Eye or skin damage • Fire • Splash, detonation, flying debris	• Blast shield should be considered • Face shield should be considered • Safety glasses • Chemical-resistant gloves • Flame resistant lab coat (NFPA 2112)	*All in room:* • Safety glasses • Chemical splash goggles • Flame resistant lab coat (NFPA 2112)
C13	Category 2 or higher engineered nanomaterials	○ Yes ○ No	• Inhalation, exposure, dermal exposure	• Safety glasses • Lab coat • Chemical-resistant gloves	• All in room: • Safety glasses • Lab coat
C14	Minor chemical spill cleanup	○ Yes ○ No	• Eye or skin damage • Respiratory damage	• Safety glasses • Lab coat • Chemical-resistant apron • Chemical-resistant gloves • Shoe covers	• Safety glasses • Lab coat
C15	Major chemical spill cleanup	○ Yes ○ No	• Multiple hazards	• Call EH&S for assistance	*All personnel in laboratory room must evacuate lab*

Physical Hazards

❑ **I certify that all activities listed in the Physical Hazards section below are NOT conducted in this laboratory.**

#	Lab Activity: working with:	?	Potential Known Hazards	Active Researchers PPE	Adjacent Individuals PPE
P1	cryogenic liquids	○ Yes ○ No	• Major skin, tissue, or eye damage	• Chemical splash goggles for larger volumes • Face shield should be considered • Safety glasses • Lab coat • Cryogenic protective gloves	• Safety glasses • Lab coat
P2	very cold equipment, samples, or dry ice	○ Yes ○ No	• Frostbite, hypothermia	• Possibly warm clothing • Safety glasses • Lab coat • Cryogenic protective gloves	• N/A

P3	the removal of sealed vials from liquid nitrogen	❍ Yes ❍ No	• Cuts to face/neck and frostbite to hands • Vials may explode upon rapid warming	• Face shield should be considered • Safety glasses • Lab coat • Cryogenic protective gloves	• Safety glasses • Lab coat
P4	scalding liquids or hot equipment (e.g., autoclave, water bath, oil bath)	❍ Yes ❍ No	• Eye or skin damage • Burns	• Chemical splash goggles for larger volumes • Safety glasses • Lab coat • Thermal protective gloves (impermeable insulated gloves for liquids and steam)	• N/A
P5	glassware washing	❍ Yes ❍ No	• Lacerations, chemical splash	• Safety glasses • Lab coat • Chemical-resistant gloves	• N/A
P6	loud equipment, noises, sounds, alarms, etc.	❍ Yes ❍ No	• Potential ear damage and hearing loss	• Hearing protection (consult EH&S for SNR factor needed)	In: • Hearing Protection • **Consult EH&S**
P7	a high-powered sonicator	❍ Yes ❍ No	• Ear damage, tissue damage	• Safety glasses • Disposable gloves • Lab coat • Hearing protection (consult EH&S for SNR factor needed)	• Hearing protection **consult EH&S**

P8	a centrifuge	○ Yes ○ No	• Imbalanced rotor can lead to broken vials, cuts, exposure, projectiles	• Safety glasses • Disposable gloves • Lab coat	• N/A
P9	sharps (e.g. needles, razor blades and broken glass)	○ Yes ○ No	• Cuts • Exposure	• Safety glasses • Lab coat • Cut resistant gloves should be considered • Face shield should be considered (for high risk activities)	• N/A
P10	an apparatus containing materials under pressure or vacuum	○ Yes ○ No	• Eye or skin damage • Projectiles	• Safety glasses • Lab coat, Chemical-resistant Apron	• Safety glasses • Lab coat
P11	a microtome	○ Yes ○ No	• Cuts, pinch and exposure	• Cut-resistant gloves • Safety glasses • Lab coat	• N/A

Biological Hazards

❑ **I certify that all activities listed in the Biological Hazards section below are NOT conducted in this laboratory.**

#	Lab Activity: working with:	?	Potential Known Hazards	Active Researchers PPE	Adjacent Individuals PPE

B1	human or non-human primate blood, body fluids, tissues, cells or other potentially infectious material (OPIM) which may contain human bloodborne pathogens (BBP)	❍ Yes ❍ No	• Exposure to infectious material • Sharps injuries	• Disposable gloves • Eye and mucous membrane protection (as appropriate for operations) • Barrier lab coat impervious to fluids	• Safety glasses • Lab coat
B2	microbial agents (bacteria, virus, parasites, yeast, fungi, prions), recombinant DNA and/ or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 1 microbial agents or recombinant DNA (BSL-1)	❍ Yes ❍ No	• Sharps injuries • Eye irritation • Exposure of infectious material to those who may have personal health issues which make them more susceptible to infection; cross contamination of animal or extra laboratory areas	• Safety glasses • Disposable gloves • Lab coat	• Safety glasses • Lab coat
B3	microbial agents, recombinant DNA and/or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 2 microbial agents or recombinant DNA (BSL-2)	❍ Yes ❍ No	• Exposure to infectious material, particularly through broken skin or mucous membranes • Sharps injuries	• Double layer disposable gloves. • Safety glasses • Lab coat • Note: Additional PPE may be required based on risk assessment by the IBC	• All personnel in laboratory room: • Safety glasses • Lab coat

B4	microbial agents, recombinant DNA and/or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 2 microbial agents or recombinant DNA for which Biosafety Level 3 practices are required (BSL-2+)	❍ Yes ❍ No	• Exposure to infectious material with high risk of exposure by contact skin or mucous membranes and other potential or unknown routes of entry and/or increased consequences of exposure • Sharps injuries	• Double layer disposable gloves • Safety glasses • Lab coat • Barrier lab coat impervious to fluids	• All personnel in laboratory room: • Lab Coat • Safety glasses
B5	microbial agents, recombinant DNA and/or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 3 microbial agents or recombinant DNA (BSL-3)	❍ Yes ❍ No	• Exposure to infectious materials with high risk of exposure, particularly through the inhalation route	• Double layer • disposable gloves • Shoe covers or dedicated shoes • Respirator (for some work a higher level may be required N95 minimum) • Safety glasses • Solid-front protective laboratory coat or gown	• All personnel in laboratory room: • Double layer disposable gloves • Shoe covers or dedicated shoes • Respirator (for some work a higher level may be required N95 minimum) • Safety glasses • Solid-front protective laboratory coat or gown

B6	live animals only or in conjunction with Risk Group 1 microbial agents or recombinant DNA (ABSL-1)	○ Yes ○ No	• Allergies • Animal bites • Sharps injuries • Eye irritation • Exposure of infectious material to those who may have personal health issues which make them more susceptible to infection; cross contamination of animal or extra laboratory areas	• Safety glasses • Disposable gloves • Lab coat	• All personnel in laboratory room: • Safety glasses • Lab coat
B7	infected or potentially infectious live animals alone or in conjunction with Risk Group 2 microbial agents or recombinant DNA (ABSL-2)	○ Yes ○ No	• Exposure to infectious material • Allergies • Animal bites • Sharps injuries	• Safety glasses • Disposable gloves • Lab coat • Bouffant cap	• All personnel in laboratory room: • Safety glasses • Lab coat • Bouffant cap

Radiological Hazards

❑ **I certify that all activities listed in the Radiological Hazards section below are NOT conducted in this laboratory.**

#	Lab Activity: working with:	?	Potential Known Hazards	Active Researchers PPE	Adjacent Individuals PPE

R1	unsealed radioactive materials including generally licensed radioactive material or devices (e.g., uranyl acetate thorium nitrate, ^{32}P-labeled biomolecules)	○ Yes ○ No	• Cell damage • Potential spread of radioactive materials	• Safety glasses • Lab coat • Impermeable or chemical resistant gloves	• Safety glasses • Lab coat
R2	unsealed radioactive materials in hazardous chemicals (corrosives, flammables, liquids, powders, etc.)	○ Yes ○ No	• Cell damage • Spread of contamination and hazards for the specific chemical	• Chemical splash goggles for larger volumes • Safety glasses • Lab coat • Chemical-resistant gloves	• Safety glasses • Lab coat
R3	sealed radioactive sources or devices containing sources of radioactive materials (e.g., liquid scintillation counters, gas chromatographs/electron capture detectors, static eliminators, etc.)	○ Yes ○ No	• If sealed source is compromised due to removal from equipment or physical abuse: cell damage, potential spread of radioactive materials	• PPE is not necessary under normal operating instructions • Note: Source may not be removed from device except by EH&S or manufacturer.	• N/A

Laser Hazards

❑ **I certify that all activities listed in the Laser Hazards section below are NOT conducted in this laboratory.**

#	Lab Activity: working with:	?	Potential Known Hazards	Active Researchers PPE	Adjacent Individuals PPE
L1	Open Beam - Performing alignment, trouble-shooting or maintenance that requires working with an open beam and/or defeating the interlocks on any Class 3 or Class 4 laser system	❍ Yes ❍ No	• Eye damage	• Optical density and wavelength-specific safety glasses based on individual beam parameters	• All personnel in laser use room: • Optical density and wavelength-specific safety glasses based on individual beam parameters
L2	Open Beam - Viewing a Class 3R laser beam with magnifying optics	❍ Yes ❍ No	• Eye damage	• Optical density and wavelength-specific safety glasses based on individual beam parameters	• N/A
L3	Open Beam - Working with a Class 3B laser open beam system with the potential for producing direct or specular reflections	❍ Yes ❍ No	• Eye damage	• Optical density and wavelength-specific safety glasses based on individual beam parameters • Lab coat or appropriate clothes	• All personnel in laser use room: • Optical density and wavelength-specific safety glasses based on individual beam parameters • Lab coat or appropriate clothes

L4	Open Beam - Working with a Class 4 laser open beam system with the potential for producing direct, specular or diffuse reflections	❍ Yes ❍ No	• Eye or skin damage	• Optical density and wavelength-specific safety glasses based on individual beam parameters • Lab coat or appropriate clothes	• All personnel in laser use room: • Optical density and wavelength-specific safety glasses based on individual beam parameters • Lab coat or appropriate clothes
L5	Non-Beam - Handling dye laser materials such as dyes, chemicals, and solvents	❍ Yes ❍ No	• Explosion • Cancer • Fire	• Safety glasses • Chemical-resistant gloves • Flame resistant lab coat (NFPA 2112)	• Safety glasses • Lab coat
L6	Non-Beam - Maintaining and repairing power sources for large Class 3B and Class 4 lasers	❍ Yes ❍ No	• Explosion • Electrocution • Fire	• Electrical protection lab coat (NFPA 70E) or electrical protection lab coat (NFPA 70E) coveralls • Electrical isolation mat	• N/A
L7	Enclosed Beam - Using a Class 1 device housing a Class 3B or Class 4 enclosed or embedded laser with the potential for beam exposure during a servicing event	❍ Yes ❍ No	• Eye or skin damage	• Optical density and wavelength-specific safety glasses based on individual beam parameters • Lab coat or appropriate clothes	• All personnel in laser use room: • Optical density and wavelength-specific safety glasses based on individual beam parameters • Lab coat or appropriate clothes

Non-Ionizing Hazards

❑ **I certify that all activities listed in the Non-Ionizing Radiation Hazards section below are NOT conducted in this laboratory.**

#	Lab Activity working with:		Potential Hazards	Active Researchers PPE	Adjacent Individuals PPE
N1	unshielded sources of ultraviolet radiation	❍ Yes ❍ No	• Conjunctivitis, corneal damage, skin redness	• Gloves • Lab coat • UV face-shield	• Lab coat • UV face-shield
N2	intense infrared emitting equipment (e.g. glass blowing)	❍ Yes ❍ No	• Cataracts, burns to cornea	• Lab coat • Appropriate shaded glasses	• Lab coat • Shaded glasses

Custom Hazard Assessment

❑ **No Custom Laboratory Activities have been identified.**

Instructions: *Example of hazards include: Impact, Penetration, Compression, Chemical, Heat, Harmful dust, and optical radiation.*

Task	Hazard	Control	PPE required
		☐ EYE / FACE:	
		☐ BODY:	
		☐ HAND:	
		☐ FOOT:	
		☐ OTHER:	

		☐ Eye / Face:
		☐ Body:
		☐ Hand:
		☐ Foot:
		☐ Other:
		☐ Eye / Face:
		☐ Body:
		☐ Hand:
		☐ Foot:
		☐ Other:
		☐ Eye / Face:
		☐ Body:
		☐ Hand:
		☐ Foot:
		☐ Other:

Laboratory Safety, & Environmental Compliance

Marlan and Rosemary Bourns College of Engineering
Chair's Meeting

12/16/2013

Russell Vernon, Ph.D., Director, EH&S
Karen Janiga, MS, Research Safety Mgr & Radiation Safety Officer
Sarah Meyer, MSPH, CIH, CSP, Laboratory Safety Compliance Spec
Nicole Clark, MA, Laboratory Safety Audit Specialist
Ondra Carter, Radiation Safety Specialist
Nasr Gergis, Ph.D., DVM, REHS, RBP, Biosafety Officer
Tiffany Kwok, REHS, Asst. Biosafety Officer & Env Health Spec.

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Simplified Compliance Hierarchy

- US Constitution
  - Federal Law ≡ Internal Treaties *adopted by US*
    - Federal Regulations
      - State Constitution
        - State Law
          - State Regulations
            - UC Policy
              - UCR Policy
                - College Policy

Contractual Obligations
- Biosafety in Microbiological and Biomedical Laboratories (5th ed.)
  - National Institutes of Health, Office of Biotechnology Activities
    - UCR Institutional Biosafety Committee
      - UCR Biosafety Officer

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State Regulations
Lab Fatality ⇒ Criminal Charges

Labor Code §425(a)

- UC Regents did not:
  - Provide adequate training
  - Require appropriate Personal Protective Equipment
  - Establish Standard Operating Procedures

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California Occupational Safety & Health Regulations are in CCR Title 8

- California Occupational Safety and Health Act of 1973 established Cal/OSHA
- California is an agreement state that enforces state occupational safety laws which are at least as effective as federal law.
- In 1987, Governor Deukmejian took action to withdraw the agreement and reduce state enforcement funding.
- In 1988, Proposition 97 restored Cal/OSHA.

Passing 53.71% to 46.29%

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Recent Efforts

- Year-long push with Chemistry & Biochemistry
- UC Lab Safety Training Policy compliance October deadline
- UC Personal Protective Equipment Policy March 2014 deadline
  - Title 8 PPE compliance through Laboratory Hazard Assessment Tool, Jan 10th deadline for free PPE distribution event

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Hazard Assessment

- Federal & State regulations require the employer assess the hazards in a workplace for personal protective equipment
- UC Policy places this assessment role in the hands of the faculty supervisor for a lab
- Details of the requirement follow, the parts in purple are accomplished through the use of the Laboratory Hazard Assessment Tool (LHAT)

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8CCR§3380. Personal Protective Devices

(b) PPE distinctly marked with manufacturer

(c) The employer shall assure…

employee is instructed and uses… equipment in accordance with the manufacturer's instructions

(d) The employer shall assure…

all… personal protective equipment complies with… Title 8 standards

equipment is maintained in a safe, sanitary condition.

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8CCR§3380 *(continued)*

(e) Protectors shall be of such design, fit and durability as to **provide adequate protection** against the hazards for which they are designed. They shall be **reasonably comfortable** and shall **not unduly encumber** the employee's movements necessary to perform his work.

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8CCR§3380 *(continued 2)*

(f) Hazard assessment and equipment selection.

(1) The employer shall assess the workplace to determine if hazards are or are likely to be present…

(A) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;

(B) Communicate selection decisions to each affected employee; and,

(C) Select PPE that properly fits each affected employee.

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8CCR§3380 *((f) continued 3)*

(2) The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies…

- the workplace evaluated;
- the person certifying that the evaluation has been performed;
- the date(s) of the hazard assessment; and,
- which identifies the document as a certification of hazard assessment.

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8CCR§3380 *((f) continued 4)*

(3) Defective and damaged equipment. Defective or damaged personal protective equipment shall not be used.

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8CCR§3380 *((f) continued 5)*

(4) Training. The employer shall provide training to each employee…to know at least the following:

(A) When PPE is necessary;

(B) What PPE is necessary;

(C) How to properly don, doff, adjust, and wear PPE;

(D) The limitations of the PPE; and,

(E) The proper care, maintenance, useful life and disposal of the PPE.

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8CCR§3380 *((f) continued 6)*

(5) Each affected employee shall demonstrate an understanding of the training… and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.

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8CCR§3380 *((f) continued 7)*

(6) When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required… the employer shall retrain each such employee.

(A) Changes in the workplace render previous training obsolete; or

(B) Changes in the types of PPE to be used render previous training obsolete; or

(C) Inadequacies in an affected employee's knowledge or use of assigned PPE

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8CCR§3380 *((f) continued 8)*

(7) The employer shall verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification.

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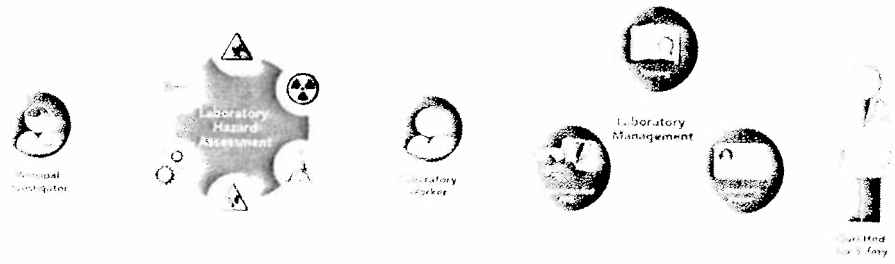
Laboratory Hazard Assessment Tool Overview



https://ehs.ucop.edu/lhat

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LHAT Benefits

- Objectives for the Principal Investigator (PI)*
  - Identify hazards that are present in the lab
  - Communicate laboratory hazards to personnel
  - Identify the PPE to be used based on the hazard assessment
  - Provide PPE training to lab personnel
  - Maintain records of PPE assessment and training

*For the purposes of this LHAT the term "Principal Investigators" is used very broadly. It refers to the individual responsible for the oversight of a laboratory and may include individuals with the title of Faculty Principal Investigators, Laboratory Supervisors, Department Laboratory Coordinators, Laboratory Directors, Instrumentation Laboratory Supervisors, and Laboratory Administrators

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LHAT Benefits *(2)*

- Objectives for Laboratory Personnel
  - Receive information about hazards present in the lab
  - Receive information about PPE to be used to work in the lab
  - Receive training and demonstrate understanding of the training on the recommended PPE
  - Receive voucher for PPE issued by the campus

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LHAT Benefits *(3)*

- Objectives for the Campus (EH&S)
  - Receive a hazard assessment from each lab
  - View the lab personnel for each lab
  - Review PPE training status of PIs and Lab personnel
  - Enable distribution of system-wide funded PPE to lab personnel
  - Run reports to generate metrics and need-based information about labs, personnel and types of hazards

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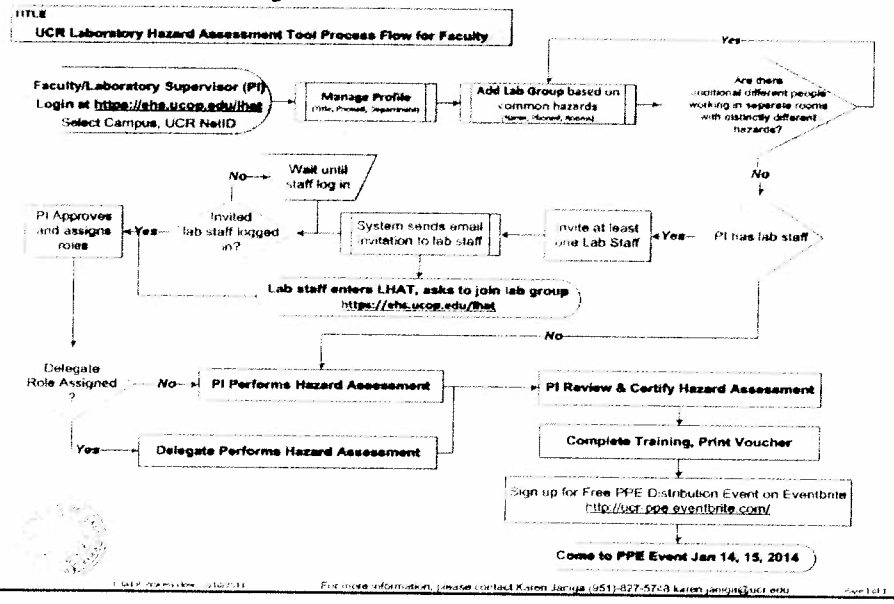
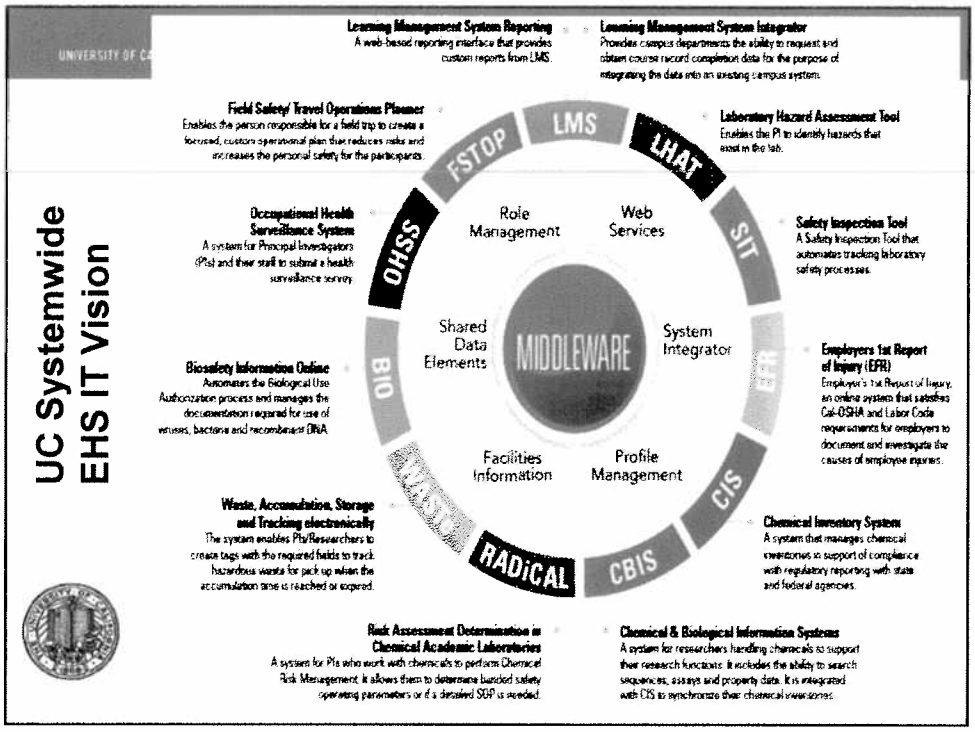
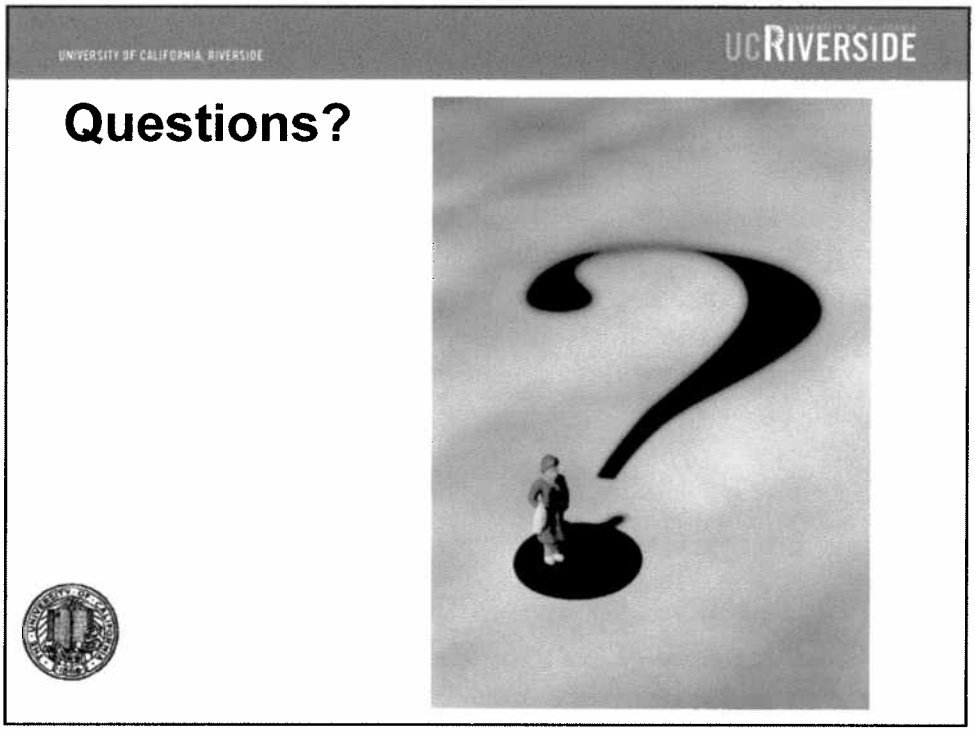
Laboratory Hazard Assessment Tool




UC Systemwide
EHS IT Vision
Learning Management System Reporting
A web-based reporting interface that provides custom reports from LMS.
Learning Management System Integrator
Provides campus departments the ability to request and obtain course record completion data for the purpose of integrating the data into an existing campus system.
Field Safety/ Travel Operations Planner
Enables the person responsible for a field trip to create a focused, custom operational plan that reduces risks and increases the personal safety for the participants.
Laboratory Hazard Assessment Tool
Enables the PI to identify hazards that exist in the lab.
Occupational Health Surveillance System
A system for Principal Investigators (PIs) and their staff to submit a health surveillance survey.
Safety Inspection Tool
A Safety Inspection Tool that automates tracking laboratory safety processes.
Biosafety Information Online
Automates the Biological Use Authorization process and manages the documentation required for use of viruses, bacteria and recombinant DNA.
Employers 1st Report of Injury (EPR)
Employer's 1st Report of Injury, an online system that satisfies Cal-OSHA and Labor Code requirements for employers to document and investigate the causes of employee injuries.
Waste, Accumulation, Storage and Tracking electronically
The system enables PIs/Researchers to create tags with the required fields to track hazardous waste for pick up when the accumulation time is reached or expired.
Chemical Inventory System
A system that manages chemical inventories in support of compliance with regulatory reporting with state and federal agencies.
Risk Assessment Determination in Chemical Academic Laboratories
A system for PIs who work with chemicals to perform Chemical Risk Management. It allows them to determine handled safety operating parameters or if a detailed SOP is needed.
Chemical & Biological Information Systems
A system for researchers handling chemicals to support their research functions. It includes the ability to search sequences, assays and property data. It is integrated with CIS to synchronize their chemical inventories.
LMS
LHAT
SIT
EPR
CIS
CBIS
RADiCAL
WASTE
BIO
OHSS
FSTOP
Role Management
Web Services
Shared Data Elements
MIDDLEWARE
System Integrator
Facilities Information
Profile Management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Questions?