

# Chemical Engineering Graduate Student Handbook 2021

Graduate Program  
Office: NCRC-28,  
room G040  
2800 Plymouth Rd.  
Ann Arbor, MI 48109-2800  
<https://che.engin.umich.edu/>



## DIRECTORIES

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## INTRODUCTION

The Rackham Graduate School at the University of Michigan offers advanced instruction leading to the following degrees in the Chemical Engineering Department:

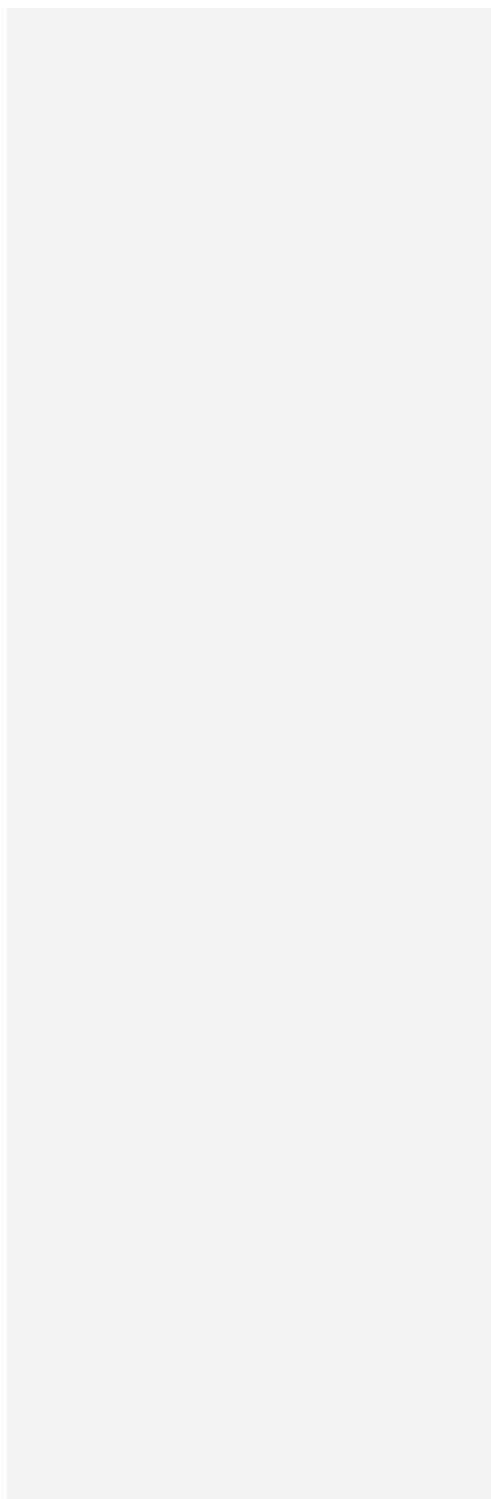
Doctor of Philosophy (Ph.D.)  
Master of Science (M.S.)  
Master of Science in Engineering (M.S.E.)

This booklet is intended for graduate students in chemical engineering. It serves to highlight and, in some cases, supplement information contained in the official Rackham publications and the Rackham and ChE Department websites. Graduate students in chemical engineering must adhere to all Rackham policies and meet all Rackham degree requirements. In addition, the ChE department has additional requirements that must be met. This booklet is to be used as a general reference and not as an exhaustive source of information.

Please note that **each graduate student holds complete and full responsibility for his/her own program of study**. Therefore, it is expected that each student will become familiar with the contents of this booklet as well as the general rules of the Rackham Graduate school and the Chemical Engineering Department and the requirements for the graduate degree being pursued.

# SECTION 1

## DIRECTORIES



## 1.1 DEPARTMENT ADMINISTRATIVE AND TECHNICAL STAFF

	<b>Room #</b>	<b>Phone #</b>	<b>Email (@umich.edu)</b>
Africa, Mike	NCRC 28, G130	764-0012	mae
Anderson, Joshua	NCRC 10, G033	647-8244	joaander
Bacus, Connie	NCRC 28, 1068W	764-0023	cbacus
Barr, Chris	3114 Dow	763-1336	cjbarr
Bogdanski, Pam	3074E Dow	764-7368	pbog
Bracken, Laura	3146 Dow	647-9876	laurabd
Clark, Lisa	3146 Dow	647-9876	ljclark
Coulter, Karen	NCRC 10, A176	764-0683	kcoulter
Downey, Jennifer	NCRC 28, 1043W	763-6942	downeyj
Evans, LaKisha	NCRC 28, G068	936-3314	lakishae
Fellers, Shelley	3074 Dow	764-2383	sfellers
Fouladdel, Shamileh	NCRC 20, 318WB	763-3820	sfouladd
Franklin-Smith, Cassandra	3074D Dow	764-4659	cassware
	NCRC 28, Ground Flr		
Hamilton, Catrina	3074 Dow	764-2383	catrinal
Hamlin, Susan	NCRC 28, G040	763-1148	hamlins
Hou, Harrison	NCRC B10, 129		hhhhou
Jackson, Dana	NCRC 28, G140	647-9828	dmjackso
Jeavons, Abby	3122 Dow	936-3938	abje
Jent, Rhonda	NCRC 28, 1067W	764-4340	rsweet
Johnson, Brian	NCRC 28, G007	764-8130	brianj
Mintz, Barb	3146 Dow	647-9876	bgmintz
Perry, Barbara	NCRC 28, 2043W	764-2384	barbper
Ponchart, Huimin	NCRC 28, 1069W	No phone	ponchart
Raickovich, Kelly	NCRC 28, G050W	647-6207	raick
Raymond, Jeffery	NCRC B26, 129S		jefferyr
Rizvi, Syed	NCRC 28, G019E	764-7287	smrizvi
Rodriguez, Ben	NCRC 28, 1070W	647-8119	benrod
Sennett, Nora	NCRC 28, G062W	936-0689	nsennett
Swisher, Sandra	NCRC 28, 1071W	764-7413	sandys
Westin, Mary Beth	NCRC 10, A170	763-1681	westinm
Wolberg, Paul	NCRC 28, G044W	764-9173	pwolberg
Zeinali, Mina	NCRC 20, 303W	617-817-1591	mzeinali

## 1.2 OTHER PHONE NUMBERS OF GENERAL INTEREST

Academic Requirements - <a href="https://rackham.umich.edu/academic-policies/">https://rackham.umich.edu/academic-policies/</a>	763-0171
Athletic Ticket Office - <a href="https://mgoblue.com/sports/2017/6/16/tickets-ticket-office-index-html.aspx">https://mgoblue.com/sports/2017/6/16/tickets-ticket-office-index-html.aspx</a>	764-0247
Benefits/Payroll/Shared Services Center - <a href="https://ssc.umich.edu/human-resources/benefits/">https://ssc.umich.edu/human-resources/benefits/</a>	615-2000
Bias Incident, <a href="https://deanofstudents.umich.edu/critical-incidents">https://deanofstudents.umich.edu/critical-incidents</a>	764-7420
CAEN Hotline - <a href="https://caen.engin.umich.edu/contact/">https://caen.engin.umich.edu/contact/</a>	764-2236
C.A.R.E. CoE, 129 Chrysler - <a href="https://care.engin.umich.edu/">https://care.engin.umich.edu/</a>	615-1405
Campus Mind Works Resources - <a href="https://campusmindworks.org/">https://campusmindworks.org/</a>	
Campus Maize and Blueprint - <a href="https://campusblueprint.umich.edu/">https://campusblueprint.umich.edu/</a>	
City parking referee information - <a href="https://www.mapquest.com/us/michigan/ann-arbor-parking-referee-info-267473199">https://www.mapquest.com/us/michigan/ann-arbor-parking-referee-info-267473199</a>	794-6549
Counseling and Psychological Services	764-8312
Disabilities, Services for Students with	763-3000
DEI - <a href="https://www.engin.umich.edu/culture/diversity-equity-inclusion/">https://www.engin.umich.edu/culture/diversity-equity-inclusion/</a>	
Deep Blue - <a href="https://www.lib.umich.edu/collections/deep-blue-repositories">https://www.lib.umich.edu/collections/deep-blue-repositories</a>	
Duderstadt Center Information Desk	936-3191
Duderstadt Center Library - <a href="http://www.dc.umich.edu/">http://www.dc.umich.edu/</a>	647-5735
Emergency Dial	911
Emergency Ride Home - <a href="https://deanofstudents.umich.edu/article/late-night-transportation">https://deanofstudents.umich.edu/article/late-night-transportation</a>	763-1131
Emergency Text - <a href="https://dpss.umich.edu/content/emergency-preparedness/emergency-alerts/">https://dpss.umich.edu/content/emergency-preparedness/emergency-alerts/</a>	377911
Environment, Health, and Safety - <a href="https://ehs.umich.edu/">https://ehs.umich.edu/</a>	647-1143
Facilities and Plant Operations (lights burned out pipes leaking, cleaning)	647-2059
Funding - <a href="https://scholarships.engin.umich.edu/emergency-fund/">https://scholarships.engin.umich.edu/emergency-fund/</a>	
Hazardous Waste - <a href="https://ehs.umich.edu/haz-waste/">https://ehs.umich.edu/haz-waste/</a>	647-1143
International Center - <a href="mailto:icenter@umich.edu">icenter@umich.edu</a>	764-9310
International Student Resources - <a href="https://scholarships.engin.umich.edu/">https://scholarships.engin.umich.edu/</a>	
Key Office - <a href="https://maintenance.fo.umich.edu/our-teams/facilities-maintenance/key-office/">https://maintenance.fo.umich.edu/our-teams/facilities-maintenance/key-office/</a>	764-3481
MARI (Mary A Rackham Institute) clinical resource <a href="https://mari.umich.edu">https://mari.umich.edu</a>	615-7853
Non-Emergency	763-1131
Office of the Ombuds, <a href="http://www.umich.edu/~ombuds">http://www.umich.edu/~ombuds</a>	763-3545
Parking Services - <a href="https://ltp.umich.edu/contact-parking-customer-services/">https://ltp.umich.edu/contact-parking-customer-services/</a>	764-8291
Procurement Services - <a href="http://procurement.umich.edu/">http://procurement.umich.edu/</a>	764-8212
Psychiatric Emergency Services - <a href="https://medicine.umich.edu/dept/psychiatry/patient-care/psychiatric-">https://medicine.umich.edu/dept/psychiatry/patient-care/psychiatric-</a>	936-5900

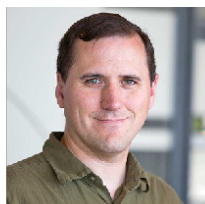


<a href="#">emergency-service</a>	
Rackham Resolution Officer, <a href="mailto:rackresolutionofficer@umich.edu">rackresolutionofficer@umich.edu</a> <a href="https://rackham.umich.edu/about/directory/resolution-officer/">https://rackham.umich.edu/about/directory/resolution-officer/</a>	764-4400
Registrar's Office - <a href="https://ro.umich.edu/">https://ro.umich.edu/</a>	763-5174
SafeRide - <a href="https://deanofstudents.umich.edu/article/late-night-transportation">https://deanofstudents.umich.edu/article/late-night-transportation</a>	647-8000
Scholarships & Fellowships - <a href="https://scholarships.engin.umich.edu/">https://scholarships.engin.umich.edu/</a>	
Sexual Assault Prevention & Awareness Center - <a href="https://sapac.umich.edu/">https://sapac.umich.edu/</a>	936-3333
State Street Ride	547-2222
Stress Counseling and Support (CAPS) - <a href="https://caps.umich.edu/">https://caps.umich.edu/</a>	764-8312
Student Financial Operations <a href="http://www.finance.umich.edu/finops/student">http://www.finance.umich.edu/finops/student</a>	764-7447
Student Life - <a href="https://studentlife.umich.edu/">https://studentlife.umich.edu/</a>	
U-M Anonymous Tip Line - <a href="https://www.dpss.umich.edu/content/services/report-a-crime/">https://www.dpss.umich.edu/content/services/report-a-crime/</a> (800-)	863-1355
U-M Police Department Administration	763-3434
University Health Service - <a href="https://uhs.umich.edu/">https://uhs.umich.edu/</a>	764-8320
Wolverine Wellness at the Health Service (Wellness Coaching) <a href="https://www.uhs.umich.edu/well-being">https://www.uhs.umich.edu/well-being</a>	

### 1.3 CHE ADMINISTRATIVE AND TECHNICAL SUPPORT STAFF



**Mike Africa**  
Senior Desktop Support  
Specialist



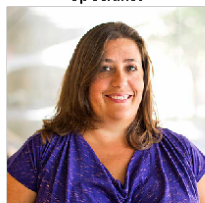
**Joshua Anderson**  
Research Area Specialist  
Lead



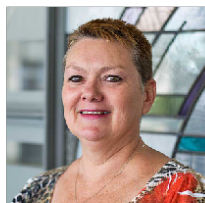
**Connie Bacus**  
Research Process  
Coordinator



**Chris Barr**  
Instructional Lab  
Supervisor



**Pam Bogdanski**  
Department  
Administrative Manager



**Laura Bracken**  
Undergraduate Program  
Administrative Assistant



**Lisa Clark**  
Undergraduate Student  
Advisor



**Karen Coulter**  
Glotzer Group Lab  
Manager



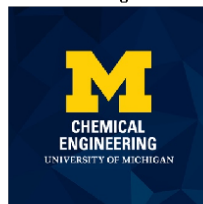
**Jennifer Downey**  
Faculty Support



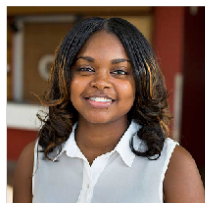
**LaKisha Evans**  
Assistant to the Chair



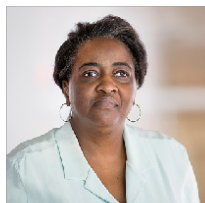
**Shelley Fellers**  
Administrative Assistant



**Shamileh Fouladdel**  
Research Lab Specialist  
Associate



**Cassandra Franklin-Smith**  
HR Assistant Senior



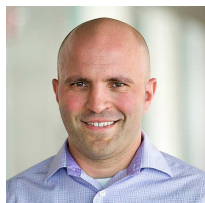
**Catrina Hamilton**  
Administrative Assistant



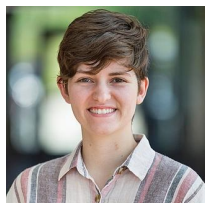
**Susan Hamlin**  
Graduate Program  
Coordinator



**Harrison Hou**  
Research Tech Kotov Lab



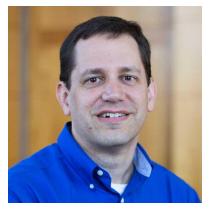
**Dana Jackson**  
Facilities Manager



**Abby Jeavons**  
Laboratory/Classroom  
Services Coordinator



**Rhonda Jent**  
Grants/Contracts  
Accountant



**Brian Johnson**  
Biochem Microsystems  
Research Engineer



**Barbara Mintz**  
Undergraduate Student  
Administrative Assistant



**Barbara Perry**  
Faculty Support



**Huimin Ponchart**  
Research Process  
Coordinator



**Kelly Raickovich**  
Administrative Assistant



**Jeffery Raymond**  
Engineering in Research



**Syed Rizvi**  
Research Laboratory  
Specialist



**Ben Rodriguez**  
Research Process  
Manager



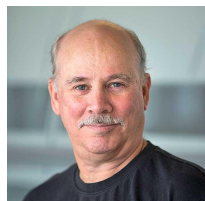
**Nora Sennett**  
Director of Strategic  
Initiatives



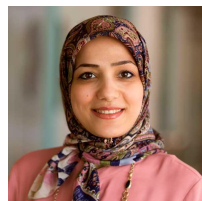
**Sandra Swisher**  
Communications +  
Alumni Relations  
Coordinator



**Mary Beth Westin**  
Faculty Support



**Paul Wolberg**  
Software Engineer



**Mina Zeinali**  
Research Laboratory  
Specialist, S.Nagrath Lab

#### 1.4 GRADUATE STUDENTS

Last Name	First Name	Uniqname	Advisor	Deg Lvl
Adams	Alexander	xadams	Larson, Ronald; Mayes, Heather	PhD
Agarwal	Harsh	agharsh	Singh, Nirala	PhD
Akinola	James	jakinola	Singh, Nirala	PhD
Al-Saloum	Saja	salsalou	Eniola-Adefeso, Lola	PhD
Almallahi	Rawan	rhalmall	Linic, Suljo	PhD
Alqubati	Abdulla	alqubati	Kim, Jinsang; Scott, Timothy	PhD
Animasahun	Olamide	aolamide	Nagrath, Deepak	PhD
Ann	Shiuan-Bai	sbann	Linic, Suljo	PhD
Ansari	Ramin	raminans	Kieffer, John; Kim, Jinsang	PhD
Anyanwu	John-Timothy	jcanyanw	Yang, Ralph	PhD
Asare	Raymond	rayasare	Glotzer, Sharon	PhD
Ball	Harrison	hmball	Nagrath, Sunitha	PhD
Banka	Alison	albanka	Eniola-Adefeso, Lola	PhD
Barth	Isaiah	ibarth	Goldsmith, Bryan	PhD
Beckwith	Joanne	jbeckwit	Solomon, Michael; VanEpps, Scott	PhD
Beg	Mirza	cbeg	Kieffer, John	PhD
Berquist	Zachary	zjber	Lenert, Andrej	PhD
Bhat	Adarsh	bhatada	Schwank, Johannes	PhD
Brannon	Emma	erbranno	Eniola-Adefeso, Lola	PhD
Buchanan	Cailin	cailinab	Singh, Nirala	PhD
Bugada	Luke	lfbugada	Wen, Fei	PhD
Burger	Tobias	tobiasbu	Lenert, Andrej	PhD
Butler	Brandon	butlerbr	Glotzer, Sharon	PhD
Cai	Xiangchen	harrycai	Antoniewicz, Maciej	PhD
Calopiz	Melissa	mcalopiz	Linderman, Jennifer; Thurber, Greg	PhD
Cao	Yuan	yuancao	Kotov, Nicholas	PhD
Case	Marshall	marcase	Thurber, Greg	PhD
Chavez	Steven	stchavez	Linic, Suljo	PhD
Chen	Han-Ting	hantingc	Linic, Suljo	PhD
Chen	Hsin-Ting	htdennis	Tessier, Peter	PhD
Chen	Yixuan	chyixuan	Poudeu-Poudeu, Ferdinand	PhD
Commisso	Alex	alexcomm	Scott, Timothy	PhD
Dai	Yi	yid	Allman, William	PhD
Desai	Alec	aldesai	Tessier, Peter	PhD
Diaz	Jose Carlos	jcdiaz	Kamcev, Jovan	PhD
Dix	Sean	sdix	Linic, Suljo	PhD
Doherty	Francis	fdoherty	Goldsmith, Bryan	PhD
Dong	Shujun	dshujun	Linderman, Jennifer; Thurber, Greg	PhD

Dwyer	Tobias	ttdwyer	Glutzer, Sharon	PhD
Elias	Rachel	rcelias	Linic, Suljo	PhD
Espinoza	Carolina	caroesp	Kamcev, Jovan	PhD
Esterhuizen	Jacques	esterhui	Goldsmith, Bryan; Linic, Suljo	PhD
Evans	Reginald	regevens	Thurber, Greg	PhD
Felder	Michael	mlfelder	Eniola-Adefeso, Lola	PhD
Gao	Fengyi	gaofy	Glutzer, Sharon	PhD
Gardner	Erica	elgard		PhD
George	Alice Sneha	gealices		Master
Ghasemi	Mohsen	msngh	Larson, Ronald	PhD
Gregory	Jason	jvgregor	Lahann, Joerg	PhD
Guevara	Maria	guevaram	Eniola-Adefeso, Lola	PhD
Habibi	Nahal	nahali	Lahann, Joerg	PhD
Hairston	Reagan	rhairst	Burns, Mark	PhD
Harris	Conor	harriscg	Larson, Ronald	PhD
Hemmerling	John	jhemmerl	Linic, Suljo	PhD
Hill	Alexander	hillalex	Lenert, Andrej; Schwank, Johannes	PhD
Hoang	Trang	trhoang	Wen, Fei	PhD
Hong	Yu-Jun	yjhongum	Antoniewicz, Maciej	PhD
Hubbard	Mische	mische	Kotov, Nicholas; VanEpps, Scott	PhD
Hwang	Sung-Won	sungwonh	Liu, Allen	PhD
Je	Kwanghwi	jekw	Glutzer, Sharon	PhD
Jones	Gabrielle	gabs	Glutzer, Sharon	PhD
Kadar	Alain	alaink	Glutzer, Sharon; Kotov, Nicholas	PhD
Kang	Jiwoong	kangjw	Shahani, Ashwin	PhD
Kerr	Corwin	cbkerr	Glutzer, Sharon	PhD
Kim	Do Hoon	umdkim	Lahann, Joerg	PhD
Kinnunen	Patrick	pkinn	Linderman, Jennifer	PhD
Kitto	David	dkitto	Kamcev, Jovan	PhD
Kopp	Anna	ankopp	Thurber, Greg	PhD
Krueger	Daniel	dkrueg		SUGS
Kupor	Daniel	dkupor	Eniola-Adefeso, Lola	PhD
Kwon	Hyeyoung	hyjkwon	Thurber, Greg	PhD
Kwon	Seok Mu	seokmu	Geissen, Tobi	PhD
Lacour	Ronald	alacour	Glutzer, Sharon	PhD
Lanham	Steven	sjlanham	Kushner, Mark	PhD
Lee	Yu-Jen	yujenlee	Antoniewicz, Maciej	PhD
Lee	Jonathan	leejkh	Eniola-Adefeso, Lola	PhD
Lim	Yein	yeinlim	Glutzer, Sharon	PhD
Liu	Tianyu	tyliux	Solomon, Michael	PhD
Lopez	Genesis	glope	Eniola-Adefeso, Lola	PhD
Lu	Shawn	shawnxlu	Linic, Suljo	PhD
Luo	Jingwen	jingwluo	Schwank, Johannes	Master

Luyet	Chloe	cluyet	Violi, Angela	PhD
Ma	Jessica	jqma	Kotov, Nicholas	PhD
Ma	Xiao Yin	maxy	Wen, Fei	PhD
Matera	Daniel	dlmatera	Baker, Brendon	PhD
Mathur	Aarti	aartim	Linic, Suljo	PhD
McGlothlin	Connor	cmcgloth	Kotov, Nicholas	PhD
McSherry	Sean	mcsherry	Lenert, Andrej	PhD
Meghdadi	Baharan	baharan	Violi, Angela	PhD
Mittal	Anjali	mittalan	Nagrath, Deepak	PhD
Mohamedali	Hazel	hazmoh	Gong, Xiwen	PhD
Moriwaki	Katlyn	katlynmo		SUGS
Neale	Dylan	dneale	Lahann, Joerg	PhD
Nelson	Anna	nelsonan	Burns, Mark	PhD
Nessler	Ian	inessler	Thurber, Greg	PhD
Niu	Zeqi	zeqiniu	Nagrath, Sunitha	PhD
Ogunwale	Samuel	sogunwal	Larson, Ronald	PhD
Onukwugha	Nna-Emeka	nonukwug	Nagrath, Sunitha	PhD
Owhoso	Fiki	fikio	Kwabi, David	PhD
Ozofofor	Ikenna	hiozofofor	Shtein, Max	PhD
Patra	Arit	arit	Lahann, Joerg	PhD
Pepa	Kristi	pepak	Glutzer, Sharon	PhD
Piegols	Logan	lpiegols	Eniola-Adefeso, Lola	PhD
Polito	Jordyn	jopolito	Kushner, Mark	PhD
Puri	Shaunak	smpuri		SUGS
Rice	Christina	cerice	Larson, Ronald	Master
Richards	Danielle	daricha	Singh, Nirala	PhD
Rivera-Rivera	Luis	lyrivera	Glutzer, Sharon	PhD
Roy-Layinde	Bosun	roybosun	Lenert, Andrej	PhD
Rubahamya	Baron	baronr	Thurber, Greg	PhD
Rupp	Brittany	ruppb	Nagrath, Sunitha	PhD
Russell	Justin	jmrus	Allman, William	PhD
Saldinger	Jacob	jsald	Violi, Angela	PhD
Shankaran	Ajay	ajaysh	Nagrath, Deepak	PhD
Sivaneri	Neelan	neelans	Tessier, Peter	PhD
Smith	Kaylee	kaysmi	Burns, Mark	PhD
Smith	Matthew	mduncans	Tessier, Peter	PhD
Smith	Scott	scmsmith	Burns, Mark; Nagrath, Sunitha	PhD
Srinivasa Raju	Kruthi	kruthis	Nagrath, Sunitha	Master
Tan	Grace	gxtan	Larson, Ronald	PhD
Tan	James	jamestan	Lin, Nina	PhD
Vecchio	Drew	vecdrew	Kotov, Nicholas	PhD

Veksler	Michael	mveksler	Kotov, Nicholas	PhD
Wang	Binyu	binyuw	Shtein, Max	PhD
Wang	Fan-Wei	fweiwang	Tuteja, Anish	PhD
Wang	Futianyi	wangfty	Larson, Ronald	PhD
Wang	Tiexin	txwang	Tessier, Peter	PhD
Wang	Zixuan	zixuwang	Goldsmith, Bryan; Singh, Nirala	PhD
Whisnant	Kody	kgwhis	Kotov, Nicholas	PhD
Wilson	Elizabeth	eakw	Kotov, Nicholas	PhD
Wortman	James	wortmanj	Linic, Suljo	PhD
Xhyliu	Fjorela	fxhyliu	Lahann, Joerg	PhD
Yee	Christine	cmjee	Wen, Fei	PhD
Yin	Claire	cmjin	Linic, Suljo; Singh, Nirala	PhD
Young	Samuel	samueldy	Goldsmith, Bryan	PhD
Zak	Andrew	zaka	Wen, Fei	PhD
Zhang	Dapeng	dapengzh		Master
Zhang	Yi	zhjennth	Gulari, Erdogan; Linic, Suljo	PhD
Zhang	Yu	yolandaz	Nagrath, Deepak; Nagrath, Sunitha	PhD
Zhang	Yulei	yuleizh	Tessier, Peter	PhD
Zhao	Shiqi	zshiqi	Glutzer, Sharon	PhD
Zhou	Yuan	yuanzhou	Glutzer, Sharon	PhD
Zupancic	Jennifer	jenzup	Tessier, Peter	PhD

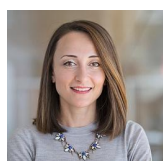
## Fall 2021 Cohort

Abed	Omar	oabed	PhD
Ahmad	Raneem	araneem	PhD
Akanbi	Oluwase un	oakanbi	PhD
Almohri	Sayed Ahmad	aalmohri	SUGS
Arkfeld	Jared	arkfeld	PhD
Asadi Tokmedash	Mohammad	asadim	PhD
Blanco Varela	Ignacio	iblanco	PhD
Carroll	Riki	carrik	SUGS
Coleman	Bryan	brycol	PhD
Frederick	Yoel	yoel	Master
Gruich	Cameron	cgruich	PhD
Guan	Jiakun	gjiakun	PhD
Hamadah	Talal	tyhamada	Master
Han	Zexiang	bradyhan	PhD
Huang	Haolong	haolong	PhD

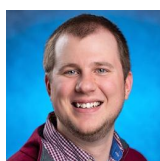
Jun	Dasol	dasolj	Master
Kirkman	Nolan	nolank	SUGS
Kumari	Abha	abhak	PhD
Kuo	Yun-Huai	ywadekuo	PhD
Liu	Yanmeng	yanmeng	PhD
Mathanker	Ankit	ankitma	PhD
Miranda Manon	Andres	amimanon	PhD
Mohd Khairi	Syahidah Binti	syahidah	PhD
Nagpal	Neha	nnagpal	PhD
Ohiro	Oluwatos in	oohiro	PhD
Omoloja	Kehinde	komoloja	PhD
Patel	Harsh	harsp	PhD
Pioche-Lee	Durante	durantep	PhD
Rahman	Areefa	areefa	PhD
Roy	Omkar	omkarroy	PhD
Seong	Sijun	sseong	PhD
Sert	Ahmet	ahmets	PhD
Stephanie	Georgina	geosteph	PhD
Wang	Xiaoqian	swangx	PhD
Yim	Carissa	carsyim	PhD
Young	Chih-Mei	ychihmei	PhD
Yu	Wendy	ywendy	PhD
Zeng	Hongzhi	hongzhiz	Master
Zhao	Jianchao	jczhao	PhD



## 1.5 ChE FACULTY



**Saadet Albayrak-Guralp**  
Lecturer  
saadetal



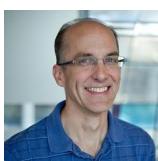
**Andrew Allman**  
Assistant Professor  
allmanaa



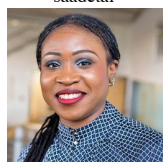
**Maciek Antoniewicz**  
Professor  
mranton



**Brendon Baker**  
Assistant Professor  
(Courtesy)  
bambren



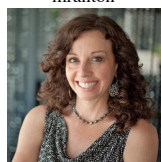
**Mark Burns**  
Professor  
maburns



**Lola Eniola-Adefeso**  
Professor  
lola



**H. Scott Fogler**  
Professor  
sfogler



**Sharon Glotzer**  
Professor,  
Department chair  
glotzerchair



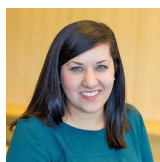
**Bryan Goldsmith**  
Assistant Professor  
bgoldsm



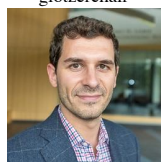
**Xiwen Gong**  
Assistant Professor  
xwgong



**Erdogan Gulari**  
Professor  
gulari



**Laura Hirshfield**  
Lecturer  
lhirshfi



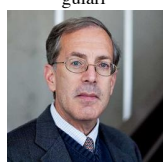
**Jovan Kamcev**  
Assistant Professor  
Jkamcev



**Jinsang Kim**  
Professor  
(Courtesy) jinsang



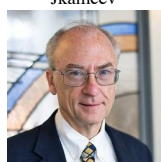
**Nick Kotov**  
Professor  
kotov



**Mark Kushner**  
Professor  
(Courtesy)  
mjkush



**Joerg Lahann**  
Professor, Director  
of Biointerfaces Inst  
lahann



**Ron Larson**  
Professor  
rlarson



**Andrej Lenert**  
Assistant Professor  
Grad Recruit Chair  
alenert



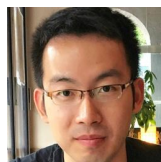
**Nina Lin**  
Associate Professor  
ninalin



**Jennifer Linderman**  
Professor, Director  
ADVANCE  
Program  
linderman



**Suljo Linic**  
Professor, Associate  
Department Chair  
linic



**Albert Liu**  
Assistant Professor  
(starting Fall 2022)  
atliu



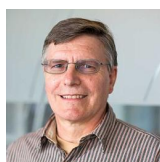
**Jouha Min**  
Assistant Professor  
jouhamin



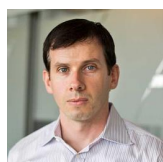
**Sunitha Nagrath**  
Professor  
snagrath



**Deepak Nagrath**  
Associate Professor  
(Courtesy)  
dnagrath



**Johannes Schwank**  
Professor, Director  
REFRESH  
schwank



**Tim Scott**  
Associate Professor  
tfscott



**Ashwin Shahani**  
Assistant Professor  
(Courtesy)  
shahani



**Lonnie Shea**  
Professor, Chair  
Biomedical Eng  
ldshea



**Max Shtein**  
Professor  
(Courtesy)  
mshtein



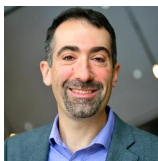
**Nirala Singh**  
Assistant Professor  
snirala



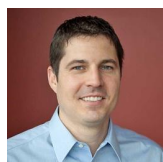
**Mike Solomon**  
Professor, Dean  
Rackham Graduate  
School  
mjsolo



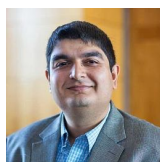
**Andy Tadd**  
Lecturer  
atadd



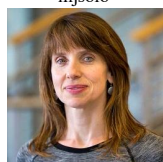
**Pete Tessier**  
Professor  
ptessier



**Greg Thurber**  
Associate Professor,  
Chair for Grad  
Education  
gthurber



**Anish Tuteja**  
Associate Professor  
(Courtesy)  
atuteja



**Angela Violi**  
Professor  
(Courtesy)  
avioli



**Henry Wang**  
Professor  
hywang



**Fei Wen**  
Associate Professor  
Chair for Under-  
grad Education  
feiwenum



**Ralph Yang**  
Professor  
yang



**Bob Ziff**  
Professor  
rziff

# SECTION 2

## GENERAL DEPARTMENT INFORMATION

## 2.1 PERSONAL

### 2.1.1 YOUR SPACE

Students will be given an office area with a desk and space for files after being assigned to a research group, usually by late October. Please note that room G129 in NCRC Building 28 has student office space for first-year students.

### 2.1.2 KEYS

Several keys may be needed to get into your office and research labs. To request a key, contact Dana Jackson, room G140 NCRC 28 or email [dmjacks@umich.edu](mailto:dmjacks@umich.edu). The faculty advisor should send an email request to Dana with the individual's name and the office/lab numbers that he/she is authorizing. Dana will prepare the key requisition that the individual will take to the Key Office. A small refundable deposit (cash only) for each key will be required.

### 2.1.3 STIPENDS, HEALTH INSURANCE, BENEFITS, TUITION

Students are eligible for U-M GradCare health insurance and benefits if you have a graduate student research assistant (GSRA) appointment, graduate student instructor (GSI) appointment, or a fellowship. Benefit information is available at [www.umich.edu/~benefits/](http://www.umich.edu/~benefits/). You should receive an email from the U-M Benefits office within one month of your new appointment, asking you to enroll in or to waive health insurance. If you enroll in health insurance, an insurance card will be mailed to you two weeks after your enrollment date. Please note that you may be **charged an additional monthly fee if you choose to enroll in extra dental or vision plan options**. Employment forms must be completed prior to the beginning of the term (including W4, MI-4, direct deposit; Alien Certificate and tax treaty forms for international students). Please check with Payroll for tax treaties here, <http://finance.umich.edu/finops/payroll/forms/taxtreaties>.

Paychecks, benefits, direct deposit and tax information can be verified at Wolverine Access, Employee Business. We recommend that you confirm your health insurance status each term on Wolverine Access. The Human Resources/Payroll/ Benefits Service Center can answer questions regarding health insurance coverage (phone 615-2000) or email [benefits.office@umich.edu](mailto:benefits.office@umich.edu). Fellowships disbursements and related taxes can be viewed on your student account. Since fellowships are paid through the Student Financial Aid office, no paystubs are available.

If tuition and registration fees are included in your financial support package, they are typically paid by the end of the first month of each term. You can view tuition and fee charges and credits by checking your student account on <http://wolverineaccess.umich.edu/>, student business. If you have an outstanding balance due from tuition or fees after the first month of the term, contact Susan Hamlin.

If there is an outstanding balance on your student account that is not related to tuition, you are responsible for taking care of it. For information regarding electronic payments, see <http://www.finops.umich.edu/student/payments>

PhD students with a financial support commitment from the ChE department will continue to receive a stipend for up to five years provided they are making satisfactory progress toward the Ph.D. degree. This support can be in the form of a GSRA/GSI appointment or a fellowship.

#### **2.1.3.1 FELLOWSHIPS**

The department does not administer competitive fellowships. Outside fellowships that graduate students have held in the past are limited to U.S. citizens and include the Hertz Foundation, EPA, Graham, NSF, NSF-MoISSI, Microsoft PhD Research, NDSEG, Department of Energy, NIH training grants (CBTP, MBSTP), and MMPEI-Rackham fellowships. The Rackham Graduate School awards fellowships including the Rackham Predoctoral fellowship for outstanding candidates. Information on Rackham fellowships can be found at <http://www.rackham.umich.edu/funding/resources>. College of Engineering fellowship information, including the Beyster Computational Innovation Graduate Fellows Program, can be found on the CoE website, <http://www.engin.umich.edu/college/info/students/finances>.

#### **2.1.4 STIPEND DISBURSEMENT**

Checks will be issued on the last working day of the month for GSA/GSI appointments and approximately the third Monday of each month for fellowships. Please arrange for direct deposit of your stipend into your bank account. You can complete the direct deposit form online (<http://wolverineaccess.umich.edu/>). Questions regarding paycheck status should first be directed to Susan Hamlin then to the Payroll Service Center at (734) 615-2000 option 2, or [Payroll@umich.edu](mailto:Payroll@umich.edu). You can review your “paystub” online at [wolverineaccess.umich.edu](http://wolverineaccess.umich.edu), Employee Business. You can view your fellowship disbursements and taxes (if any) on your student account.

During the summer, when you are not registered for classes, FICA taxes will be taken out of your paycheck until you reach candidacy status. Ph.D. candidates who are actively working on their dissertation during the spring/summer term, are registered less than half-time, and are working as a GSI, GSRA, GSSA or a temporary appointment are eligible to apply for an exemption from the FICA withholding on wages paid for those appointments. The candidate’s faculty advisor will need to certify the candidate’s summer plans. A “Request for Exemption from FICA Tax While Working on Ph.D. Dissertation” form is available on the Payroll website.

U.S. citizens who receive fellowship support are not taxed, however, the fellowship is considered taxable income and you are responsible for paying taxes quarterly. For additional information, see <http://www.finance.umich.edu/finops/payroll/tax>.

The University of Michigan taxes both the salary and fellowship payments of

international visiting scholars. Specific countries have tax treaties that allow visiting scholars to receive their payments without paying taxes on their salary and/or fellowship payments. The tax treaty information and forms required by the Payroll office are available at the University of Michigan Payroll website,

<http://www.finance.umich.edu/finops/payroll/foreign>. Under 'Tax Treaty Country List and Information' you can verify if your country has a tax treaty with the United States. Under the 'Required Tax Forms' you will find the forms that must

be completed with the Payroll office depending on the type of payment you are receiving as a student employee, student on fellowship or teacher/researcher. These forms should be submitted to the Payroll office as soon as possible to ensure that you are taxed correctly.

#### **2.1.4.1 VACATION POLICY**

Official U-M policy is that a GSRA appointment does not include any paid vacation. PhD students in our department, however, have normally been able to take two weeks off each year without seeing any reduction in their monthly stipend. The length and timing of any vacation or other leaves must be discussed with and approved by your faculty advisor in advance.

#### **2.1.5 MANDATORY CERTIFICATION OF EFFORT FOR GSRA's**

The federal government mandates that at the end of EACH term, GSRA's are required to certify his or her funding at Wolverine Access, Employee Business, Effort Certification. If a GSRA does not certify on a timely basis, it may delay his/her future GSRA appointment. For detailed information and procedures about effort reporting, visit the Financial Operations website at <http://finance.umich.edu/finops/payroll/faculty/effort>. You must log in with your username and Kerberos password to access this site. Contact Cassandra Franklin-Smith at [cassware@umich.edu](mailto:cassware@umich.edu) if you have any questions regarding this requirement.

#### **2.1.6 REGISTRATION**

Registration for classes is an online process at [wolverineaccess.umich.edu](http://wolverineaccess.umich.edu). First year students should meet with the graduate program chair or graduate program coordinator for advising. All students are expected to meet with their graduate research advisor annually for advising on degree requirements and to complete their annual progress report. Registration problems or special situations may be handled in person at the Office of the Registrar, 1212 Pierpont Commons (telephone 763-7650). Check the course schedule for dates and instructions <http://www.umich.edu/~regoff/schedule/>. Initial registration after the registration deadline will incur a late fee.

#### **2.1.7 CONTINUOUS ENROLLMENT POLICY**

It is the policy of the Rackham Graduate School that Ph.D. students at the University of Michigan register each Fall and Winter term until graduation, unless on an official leave of absence. For leave of absence details, see <https://rackham.umich.edu/navigating-your-degree/leave-of-absence/>

#### **2.1.8 RESPONSIBLE CONDUCT**

The College of Engineering (CoE) Responsible Conduct of Research and Scholarship

(RCRS) program is designed to engage you and your analytical skills so you are able to recognize, address and resolve ethical issues as they arise in classroom, professional and research settings. The program is for all Ph.D. students, postdoctoral research fellows, and any Masters or undergraduate students on NSF and/or NIH grants. It consists of 4 mandatory 2-hour workshops. These workshops were developed and are taught by College of Engineering faculty members. Each workshop is offered four times a semester, Fall and Winter terms, and once a semester in the Spring/Summer term. All PhD students must complete this training to advance to candidacy. <https://rcrs.engin.umich.edu/> Students can track their individual completion status at <https://meweb2.engin.umich.edu/grad/student/rcrs>. For more information, contact [enginrcrs@umich.edu](mailto:enginrcrs@umich.edu). You may also contact Susan Hamlin.

### **2.1.9 PERSONAL EMERGENCY FORM AND PROCEDURES**

The University encourages students, staff, and employees to update address and personal information. You can view your personal information in the Employee Business section of Wolverine Access <http://wolverineaccess.umich.edu/>. Updates to your campus address and phone number (on MCommunity) can be changed using the Address/Personal Data form. The form is at this page: <https://hr.umich.edu/working-u-m/management-administration/human-resources-administrative-forms>, under 'Forms for Individuals' ('Address/Personal Data Form'). In addition to the Addresses, Phone Numbers and Emergency Contact information included under the Personal Information section, the View Appointment section contains information about your education, date of birth and visa (I-9) status. Be sure to review and update this information.

The University community uses the UM Emergency Alert, which is a mass, urgent notification system comprising a variety of methods by which the University can contact students, faculty, and staff in the event of an active, major campus emergency:

- \* Text messages (SMS) to cell phones
- \* Voice messages to phones
- \* Emails

For more information, visit

<https://dpss.umich.edu/content/emergency-preparedness/emergency-alerts/>

### **Personal Emergency Department Form**

This form will be available in our department for reference in case of emergency. Please provide all the information you feel would best help your supervisor and emergency personnel should an emergency occur. All information is voluntary and confidential and will be maintained in a sealed envelope and used only in case of emergency.

### **2.1.10 COUNSELING AND PSYCHOLOGICAL SERVICES**

If you are feeling stressed or depressed, the University has resources to help you, such as Counseling and Psychological Services (CAPS), 3100 Michigan Union, open M-Th 8-7, F 8-5. Their short-term counseling sessions are free and confidential. You can ask for the counselor on duty, who will see you the same day, or you can schedule an appointment.

[www.umich.edu/~caps](http://www.umich.edu/~caps).

In addition, the College of Engineering's C.A.R.E. Office (129 Chrysler) is a resource for students who are experiencing academic and personal stressors. They offer a variety of services to support students in areas such as academic skills, mental health, and time management (phone 734-615-1405). <https://care.engin.umich.edu/>

For information on local mental health professionals, [www.mhweb.org](http://www.mhweb.org)

#### **2.1.11 U-M HEALTH SERVICE**

The University Health Service is located at 207 Fletcher, near the Rackham Building. The phone number is 764-8320.

#### **2.1.12 PARKING, PARKING PERMITS, BUS SCHEDULE, VEHICLE**

**RENTAL** Information is available from the Parking & Transportation Services, 523 S. Division (telephone 764-8291). <https://ltp.umich.edu/parking/>

Graduate students are eligible to park in the orange or yellow lots. For guest permits that are used for department visitors in the Dow Building, contact the department receptionist, Shelley Fellers at [sfellers@umich.edu](mailto:sfellers@umich.edu), and for visitors to NCRC, contact Barbara Perry at [barbperry@umich.edu](mailto:barbperry@umich.edu).

## **2.2 GENERAL INFORMATION**

### **2.2.1 DEPARTMENT ORGANIZATIONS**

The department supports a number of student organizations and activities. We have an AIChE student chapter (the first one formed in the U.S.!), which holds lunch meetings each week during the academic year. Undergraduate students lead the chapter, but graduate students often attend the weekly meetings and participate in chapter activities. The meetings always include lunch and an external speaker, typically from industry.

ChEGS (Chemical Engineering Graduate Society) comprises graduate students in the department. ChEGS plans numerous social activities throughout the year and assists with key departmental events. All graduate students are encouraged to participate in ChEGS meetings and activities.

NOBCCHE (National Organization for the Professional Advancement of Black Chemists and Chemical Engineers) Michigan Chapter. <https://lsa.umich.edu/chem/diversity--equity--inclusion/nobcche-national-organization-for-the-professional-advancement-o.html>

**CoE GSAC:** The CoE Graduate Student Advisory Committee consists of PhD and master's representatives from all of the CoE graduate programs and targeted graduate student societies. All of the committee members also serve as representatives on their department-level GSAC or on a society executive board. Under the direction of the Office of Student Affairs, the GSAC group meets bi-monthly, to identify and plan activities for graduate students, as well as to address areas of concern. GSAC welcomes any suggestions for new



program ideas, action items, etc. <https://studentaffairs.engin.umich.edu/graduate-student-advisory-committee/>

### **2.2.2 SEMINARS**

During the academic year, the ChE department sponsors a weekly seminar. We invite scientists and engineers, primarily from outside the university, to talk about their work and experience in fields related to chemical engineering. Graduate students should register for the one-credit seminar course (ChE 601) and are expected to attend the seminars. More importantly, you should participate in the seminars by asking questions before or after the lecture, socializing with the speaker before the lecture, and joining the speaker for lunch when it is your research group's turn to serve as the lunch hosts. These are great opportunities to learn from experts outside U-M and to broaden your professional network.

Other departments in the College of Engineering and within the university also sponsor seminars, and students are encouraged to attend any of interest.

There are two major department seminars during the academic year. (1) The Weber Lectureship, which deals with sustainable energy and environmental sustainability and (2) The Katz Lectureship, which honors a preeminent chemical engineer, which is held in the Winter term. This lectureship includes the Katz Dinner. Graduating PhD students receive special recognition at the Katz Dinner.

### **2.2.3 OTHER EVENTS**

In addition to hosting the Weber and the Katz lectures, the Chemical Engineering Department plans other events throughout the year:

The Department of Chemical Engineering Graduate Symposium is organized by the graduate students, and brings together about 130 people, including faculty, alumni, current graduate students, and representatives from companies that recruit Michigan students. This event includes talks presented by PhD students who would be graduating within 18 months, and posters presentations. Awards for best presentation, best poster, and outstanding research, service, and teaching are presented to different graduate students at the symposium's closing banquet.

The department organizes a picnic each year, typically held in early September at an Ann Arbor park, to welcome the new graduate students to the department and help them get acquainted with the other students, faculty, and staff. An open-house reception is held during the graduate recruiting weekend and current graduate students are encouraged to participate and interact with the prospective students who are visiting. In addition, ChEGS, the graduate student society, organizes a picnic each summer, a holiday potluck in December, post-DCE picnic, and numerous other events throughout the year.

The "ChE GradChat", organized by a graduate student committee, is held monthly. This event allows students and faculty to meet for discussion of important social topics.

## 2.2.4 ORDERING MATERIALS AND EQUIPMENT

Whenever possible you should order from one of U-M's many strategic suppliers (vendors). The university's strategic supplier program establishes relationships with suppliers who provide deep discounts on products and services. Many of these strategic suppliers have hosted catalogs on Marketsite to ease the ordering process.

### ONLINE PURCHASING SYSTEM (OPS):

As of September 2017, Chemical Engineering will be using OPS for order submission and tracking - <https://me-web2.engin.umich.edu/order/index/list?dept=213000>. Far superior in ease of tracking capability and efficiencies to the previous ChE Order Form, all orders should be submitted via OPS. OPS removes the need to obtain faculty approval before submitting your order, as faculty and finance approval are obtained through electronic workflow. The group email to which orders were sent – [che.orders@umich.edu](mailto:che.orders@umich.edu) - will no longer be able to receive emails.

Information on how to use OPS can be found on the ChE intranet:  
<https://sites.google.com/a/umich.edu/che-intranet/che-ordering-ops>,

or on GoogleDrive:  
<https://drive.google.com/open?id=0B0NSvNx4WOH6dXdmZmRhSHITcG8>

Orders under \$10K **with complete information and approvals** can be expected to be placed within 1 to 2 business days.

### ORDERS >\$1500 but <\$10,000:

Verification of receipt is required for orders over \$1,500. Once the shipment arrives, please go into OPS, open the appropriate order, and enter a comment indicating when the order was received, if it was in full or partial shipments, and, if there were any problems, such as damaged/unexpected products. The comment should be sent as an email via OPS to the Purchaser alone; i.e. the admin who placed your order.

### ORDERS \$10,000 or Greater:

When the materials or equipment you are ordering total \$10,000 or more, the competitive bid process is invoked, and there are extra steps to follow. You will need to justify your supplier selection (Sole Source Justification form will be needed), or provide multiple suppliers that may be able to provide the product. Procurement reserves the right to initiate a bid process. Contact your faculty support member for further instructions. More information can be found in the [SPG 507.01](#) (Standard Practice Guide) in section XI.

### PRIME SUPPLIERS:

Whenever possible, you should use the following suppliers. Some of these suppliers are available on Marketsite, although some specific chemicals may need to be ordered outside of Marketsite and require extra processing or approvals. Contact your faculty support person or Shelley Fellers ([sfellers@umich.edu](mailto:sfellers@umich.edu)) for further information.

**Gases:** [Cryogenic Gases](#) and [Linde, LLC](#). **Lab supplies and Chemicals:** [Fisher Scientific](#),

Sigma-Aldrich and EMD Millipore.

**IMPORTANT:** If companies request an address for billing, you can provide the following information:

University of Michigan Accounts Payable Wolverine Tower 5091  
3003 S. State Street  
ANN ARBOR, MI 48109  
Accounts.payable@umich.edu

### **2.2.5 RECEIVING MATERIALS AND EQUIPMENT**

All packages are delivered to the building and/or lab specified on the order form or Marketsite cart. Be sure to select the appropriate shipping code on the order form, and provide the accurate address for Marketsite carts. Be aware that some suppliers' systems will truncate the address information, so it is important to have the lab name, then your name on orders. This is especially true at NCRC labs.

#### **NCRC Labs –**

Packages are normally delivered directly to the lab, but not to a specific individual within the lab. Small packages may be delivered to the lab group mailbox.

#### **Dow Labs-**

Packages are delivered Monday through Friday to the G.G. Brown dock for distribution. The packages are then delivered to the main office, 3074 Dow, logged in by the receptionist, Shelley Fellers, and stored in the small package room located within the main office and numbered 3062F Dow. You will receive an email notification when your non-hazardous delivery has arrived, been checked in, and placed in 3062F Dow. Please sign the package out on the package log when you come pick it up.

*NOTE: Hazardous materials will be kept at the dock for pick up.*

#### **2.2.5.1 RECEIVING COMPRESSED GASES & HAZARDOUS**

##### **CHEMICALS Dow & Phoenix Labs:**

Cylinders of compressed gases and any hazardous chemical packages are delivered to the rack located on the dock of GG Brown on Beal Avenue on the east side of the building. You must pick up the cylinders and packages, and deliver them to your laboratory. If you are expecting a delivery of a hazardous chemical, please check the GG Brown dock where the rack is located. Email notifications are not sent when hazardous materials arrive. There is a monthly fee per cylinder for compressed gases, so please return empty cylinders to the GG Brown dock. Remember to indicate that they are empty. **It is important to transport full cylinders in a safe manner, as they pose a significant safety hazard.** (See Safety-Section 3.0 of this handbook for the safe procedures on transporting gas cylinders.)

The dock area is not to be used for storage of cylinders. Any cylinders left at the dock for more than one week may be returned to the supplier. If that happens, the

purchase price will not be refunded.

#### **NCRC Labs-**

Cylinders are delivered directly to the cylinder closet for each lab. Be sure to provide the cylinder closet room number when ordering (not just the lab room number).

### **2.2.6 MAILING**

All graduate students will have a mailbox in Dow 3074B, or NCRC (Building 28 G131W or B010-A174). Please keep your address in MCommunity up to date. When corresponding with individuals or companies, requesting catalogs, etc., be sure to give (as part of your address) your name, Chemical Engineering, Building name, and your room number. Using the correct address makes it much easier for the post office to direct your mail to the correct department mailbag, which speeds delivery.

#### *FOR SHIPPING:*

(your name)

Dept. of Chemical Engineering  
(your room number) H. H. Dow Building  
University of Michigan  
Brown Dock, Beal Street  
Ann Arbor, Michigan, 48109-2125

*All shipments are now accepted at  
the GG Brown dock and delivered  
to the mailroom in 3074B Dow. G.G.  
Arrangements must be made with  
dock staff for delivery of larger items*

### **2.2.7 SHIPPING**

U-M contracts with United Parcel Service (UPS) for all shipping. Pick-ups from Dow/G.G. Brown are at 4:15 p.m. from the Dow mailroom, and 5:30 p.m. at the drop box by the GG Brown entrance. Pick-up at NCRC is at 2:00 and 5:00 p.m. at the dock in Building 90. See your faculty support staff for assistance with shipping, or if they are unavailable, check with Shelley Fellers. The following information is needed for shipping: Short code, name of recipient, complete address including email and phone number of recipient, contents of package, how soon it needs to be delivered, and any special handling information that might be useful.

### **2.2.8 PETTY CASH**

Though lab supplies should be ordered through Marketsite and other UM-approved suppliers, some ChE expenses may be reimbursed via the petty cash form. If your faculty advisor approves of the expense, you may fill out the petty cash form - <http://www.finance.umich.edu/finops/cashier/forms/pettycashform> - and submit to your advisor's admin support for processing. Please include your original receipt and an email from your advisor containing his/her clear approval and a short code. The admin will then pursue additional approvals and contact you when the form is ready for you to pick up. Then take the authorized form with the original receipt to the U-M Credit Union at Pierpont Commons or the Union. A limit of \$200 per day/per account is enforced.

### **2.2.9 TEMPORARY POSITIONS**

The department has a limited number of temporary employment positions, including

grader positions. If you are interested in a grader position in an undergraduate course, contact the Undergraduate Program Office. Cassandra Franklin-Smith processes the temporary employment paperwork in the department. Contact Cassandra if you have hourly paycheck questions, at [cassware@umich.edu](mailto:cassware@umich.edu).

#### **2.2.10 COPY, FAX MACHINE**

Dow: A copy machine and fax machine are available in the department for your use in room 3074B Dow. The fax number is 734-763-0459. You must obtain code numbers from Shelley Fellers for the copy machine. See Shelley if you have any problems when making copies or sending faxes.

NCRC-10: Biointerfaces Institute mail room fax number is 734-763-7133

NCRC-28: The copy/fax machine for your business use is located in NCRC-28, room G131. See Barbara Perry in room 2043 (NCRC-28) for help. The fax number is 734-647-5432

#### **2.2.11 CONFERENCE ROOMS**

Dow: Contact Shelley Fellers by email ([sfellers](mailto:sfellers)) or your advisor's support staff to schedule:

1. Chemical Engineering conference room (3074G Dow)
2. Podbielniak Reading Lounge - Room number 3158 Dow, called the "Pod Room" for short, is located in the south hall next to the kitchen. The Podbielniak Room is available for special occasions, including the PhD defense.
3. Materials Science & Engineering conference room (3062 Dow)

CoE Classrooms: CoE Classrooms can be scheduled through department staff Barbara Mintz at [bgmintz@umich.edu](mailto:bgmintz@umich.edu) or Laura Bracken at [laurabd@umich.edu](mailto:laurabd@umich.edu)

NCRC rooms: contact Barbara Perry at [barbper@umich.edu](mailto:barbper@umich.edu), Kelly Raickovich at [raick@umich.edu](mailto:raick@umich.edu), or Mary Beth Westin at [westinm@umich.edu](mailto:westinm@umich.edu) (NCRC-10, A170).

#### **2.2.12 OFFICE SUPPLIES**

Office supplies should be ordered with your advisor's approval using your research group funds. Each research group will order its own supplies. Short codes beginning with 0, i.e. federally sponsored short codes, cannot be used for office supplies. If ordering office supplies via Marketsite, please have them in their own cart. Taking this precaution makes it much easier to change a short code, if that is necessary. Please check with your advisor's support staff regarding placing your orders through the OPS system.

#### **2.2.13 RACKHAM TRAVEL GRANTS**

A student is eligible for one travel grant award (either domestic or international, but not both) during a fiscal year, which runs from July 1 - June 30. Applications are accepted at any time PRIOR TO THE CONFERENCE and will be considered on an individual basis according to each student's circumstances. Applications will not be considered for retroactive funding. To be considered for funding, a student must submit a complete

application, including comments by the faculty advisor or graduate chair as to how the conference participation is directly relevant to the student's research or graduate studies. Please list Susan Hamlin as the department contact staff.

#### **2.2.14 RACKHAM GRADUATE STUDENT RESEARCH GRANT**

The Rackham Graduate Student Research Grant is designed to support Rackham graduate students who need assistance to carry out research that advances their progress toward their degree. <http://www.rackham.umich.edu/funding/research-grant>

#### **2.2.15 RACKHAM PROFESSIONAL GRANT**

A Rackham Professional Development Grant is intended to support Rackham doctoral students seeking careers both within and outside academia. This funding is to support short-term experiences that promote the development of professional skills. <http://www.rackham.umich.edu/funding/professional-development-grant>

#### **2.2.16 RACKHAM GRADUATE STUDENT EMERGENCY FUNDS**

The Rackham Graduate Student Emergency Fund is intended to help meet the financial needs of Rackham graduate students who encounter an emergency situation or one-time, unusual, or unforeseen expenses during their degree program. <http://www.rackham.umich.edu/funding/emergency-funds>

#### **2.2.17 RACKHAM GRADUATE STUDENT PARENTAL ACCOMMODATION**

The Graduate Student Parental Accommodation Policy (GSPAP) assists graduate students immediately following the birth or adoption of a young child. The purpose of this policy is to make it possible for a student to maintain registered full-time student status, along with all the benefits of such status. GSRAs may be eligible for funding from the Childbirth Accommodation Fund. <http://www.rackham.umich.edu/policies/parental-accommodation-policy>

#### **2.2.18 GRADUATE STUDENT PROFESSIONAL TRAVEL WITH CHILDREN GRANT**

The Grant is intended to support expenses incurred by Rackham graduate student parents traveling with small children (under the age of 6) while attending conferences, workshops, meetings or other academic events as part of their scholarly research or in pursuit of professional career readiness both within and outside of academia. Requests may also include dependent care at home while the student is traveling, the cost of transporting the dependent, car seat/crib rental, and daycare charges. <http://www.rackham.umich.edu/funding/professional-travel-with-children-grant>

#### **2.2.19 YEAR-ROUND ELIGIBILITY FOR UNIVERSITY SERVICES**

The Rackham registration policy calls for Ph.D. students to register in all fall and winter terms from matriculation to degree completion. University services that remain available to Ph.D. students during the spring/summer semester include University Library, Career Center, E-mail, Printing, International Center, University Housing, Counseling and

Psychological Services, Services for Students with Disabilities, Spectrum Center and Parking Services. Rackham Ph.D. students, who were registered in the Winter 2021 semester, will have access to University Health Service, Recreational Sports, and Student Legal Services at no additional charge.

For questions regarding access to University support services, please e-mail [phd-yearroundservices@umich.edu](mailto:phd-yearroundservices@umich.edu).

#### **2.2.20 CoE CO-CURRICULAR EXPERIENCES FUNDING**

The College of Engineering is excited to provide support to College of Engineering graduate students, with financial need, in their pursuit of co-curricular learning experiences. If you have any questions regarding your application, please contact Mariah Fiumara at [mariahmo@umich.edu](mailto:mariahmo@umich.edu).  
<https://studentaffairs.engin.umich.edu/graduate-student-co-curricular-experiences-funding/>

#### **2.2.21 STUDENT BUSINESS CARDS**

Student business cards can be ordered from the University of Michigan Printing Services. If you are a 3<sup>rd</sup> year student or above, please contact Susan Hamlin for details.

#### **2.2.22 ChE EXPENSE REPORTING & REIMBURSEMENT**

See informational chart on next page for details. Please contact your faculty support staff if you have any questions.

STUDENT GUEST  
REIMBURSEMENT (SGR)  
SGR Hosting Expense  
Report

- Student Payment Form  
[https://spg.umich.edu/sites/default/files/SPG-601x30\\_attachement.pdf](https://spg.umich.edu/sites/default/files/SPG-601x30_attachement.pdf)
- Receipts
- Conference flyer or agenda
- **NOTE:** Applies to both
- Concur and Non-Concur users
- Student Payment Form  
[https://spg.umich.edu/sites/default/files/SPG-601x30\\_attachement.pdf](https://spg.umich.edu/sites/default/files/SPG-601x30_attachement.pdf)
- Receipts
- Student submit SGR reimbursement requests via **OPS new request form or Concur**  
<https://deptapps.engin.umich.edu/oder/index/list?dept=213000>
- Under “**Your Information**” add email, shortcode and verify PI name. Under “**Vendor Name**” add your name, current address, phone# and email
- Under “**Items you wish to purchase**” enter business purpose and dates under description, and enter total amount of reimbursement
- Attach all required documentation in the section “**Other Attachments**”
- Enter comments as needed
- Click on **Submit Order** for processing
- Admin support will review expense report for accuracy and completeness
- Admin submit SGR e- Form to Accounts Payable to initiate case number and voucher ID#. Process includes: finance/management final approvals



- SGR reimbursements submitted via OPS allows for status tracking/team back up processing/uploaded files

#### ADMIN SUPPORT

**Business Purpose:** Why, Where, When, & Who (must include conference name and dates of conference)  
**Example:** Presented at AIChE: 6/1 – 6/5 2019  
**Date(s):** Actual dates of travel  
**Receipts:** Receipts must be itemized, show date of transaction, dollar amount including tip, and submitted within **45 days** of purchase Upload receipts in one attachment and organize them by date

**Business Purpose:** Why, When, & Who  
**Example:** Lab lunch to discuss lab safety procedures  
**Date(s):** Actual date of hosting  
**Receipts:** Receipts must be itemized, show date of transaction, total dollar amount including tip, and submitted within **45 days** of purchase  
**List of attendees** – include affiliation if non U-M

- Email approval from advisor/PI
- Student Payment Form [https://spg.umich.edu/sites/default/files/SPG-601x30\\_attachment.ppt](https://spg.umich.edu/sites/default/files/SPG-601x30_attachment.ppt)
- Contact your admin support for assistance in submitting **Rackham Travel Grant via Concur**

**NOTE: (SEE TRAVEL REQUIRED DOCUMENTATION AND INFORMATION)**

Jennifer Downey  
 MTuTh – 1043W, NCRC Bldg  
 28 WF – 3074 Dow  
 (734) 763-6942 / [jdowney1@umich.edu](mailto:jdowney1@umich.edu)

Barbara Perry  
 2043W, NCRC Bldg  
 28  
 (734) 764-2384 / [barbper@umich.edu](mailto:barbper@umich.edu)

Kelly Raickovich  
 G050W, NCRC Bldg  
 28  
 (734) 647-6207 / [raick@umich.edu](mailto:raick@umich.edu)

Mary Beth Westin  
 A170, NCRC Bldg  
 10 (734) 763-1681 / [westinm@umich.edu](mailto:westinm@umich.edu)

## 2.3 OTHER RESOURCES

### 2.3.22 U-M ENGINEERING CAREER RESOURCE CENTER

Their graduate student team is available to meet with you individually in career counseling appointments. Many of their programs and workshops, often co-sponsored with schools, college, departments and student groups, are designed specifically for graduate students. They have developed a library of hard copy and computer resources to help in your career decisions. They continually strive to develop employment opportunities specifically for graduate students. Employers generally recruit through their office in three main ways: on-campus recruiting, job postings and their career events. Take some time to understand how to use these resources to their fullest advantage. <http://www.careercenter.umich.edu/>

### 2.3.23 ENGINEERING GOOGLE CALENDAR

The College of Engineering calendar can be found at <http://www.engin.umich.edu/college/about/cal/event-calendar>. This site provides information on events, meetings, and programs. Individuals wishing to post on the College Calendar can access the event submission form found here: <http://studentcommunications.engin.umich.edu> or you can contact the Communications and Marketing Office directly for assistance.

#### 2.3.23.1 DEPARTMENT INTRANET SITE FOR GRADUATE STUDENTS

Information regarding events, dissertations, courses, employment and other miscellaneous items relevant to U-M ChE graduate students is included at this site. Link is available on the department website, graduate program, current students. <https://sites.google.com/a/umich.edu/che-intranet/graduate?pli=1>

### 2.3.25 THE CENTER FOR THE EDUCATION OF WOMEN (CEW)

The Center for the Education of Women, a unit of the University of Michigan, offers services to students, faculty, staff and community members; advocates for women in higher education and in the workplace; and adds to our knowledge of women's lives through our ongoing research program. The Center's focus areas include women's education, employment, careers, leadership growth and development, and well being. <http://www.cew.umich.edu>

### 2.3.26 THE CENTER FOR STATISTICAL CONSULTATION AND RESEARCH

The Center for Statistical Consultation and Research (CSCAR) is a service and research unit of the University of Michigan, administratively located in The College of Literature, Science, and the Arts. Its staff provides statistical services to faculty, primary researchers, graduate students and staff of the University. <https://cscar.research.umich.edu>

### 2.3.27 RACKHAM WRITING WORKSHOPS

In collaboration with Rackham, the Sweetland Writing Center is offering focused

workshops on a variety of issues related to graduate-level writing. For the schedule and topics, please visit the Sweetland Writing Center's website:

<https://lsa.umich.edu/sweetland>

### **2.3.28 RACKHAM RESOURCES, SERVICES, WORKSHOPS**

The Rackham Graduate School offers workshops such as professional development, resources to support academic success (how to do a literature review, working with your dissertation committee), preparing future faculty conferences, to name a few. They also hold social activities and health and wellness programs. Another helpful Rackham resource is "The Guide to Campus and Community." Find more information at the following Rackham website <https://rackham.umich.edu/rackham-life/>

### **2.3.29 ENGINEERING LIBRARY RESOURCES**

#### **Library Resources in Your Subject Area:**

If you are looking for resources for your subject area, check out the [Engineering Research Guide](http://guides.lib.umich.edu/Engineering) <http://guides.lib.umich.edu/Engineering>. There you will find information about databases, reference books, and links to guides for the different engineering disciplines. In addition to subject research guides, you can also find guides on special topics like, [Data Management Plans](http://guides.lib.umich.edu/engin-dmp) <http://guides.lib.umich.edu/engin-dmp>, [Citation Management](http://guides.lib.umich.edu/citationmanagementoptions) <http://guides.lib.umich.edu/citationmanagementoptions>, and [Research Funding and Grants Guide](http://guides.lib.umich.edu/researchfunding) <http://guides.lib.umich.edu/researchfunding>.

#### **Library Databases and Online Resources:**

Search for a database or an online resource in the [library webpage](http://www.lib.umich.edu) search box at <http://www.lib.umich.edu> or in [Search Tools](http://www.lib.umich.edu/searchtools) at <http://www.lib.umich.edu/searchtools>. The Engineering Librarians recommend [Engineering Village](http://www.lib.umich.edu/database/link/8551) at <http://www.lib.umich.edu/database/link/8551> which covers Compendex and INSPEC and is an important database for all areas of Engineering.

#### **Proxy Server Bookmarklet:**

If you are off-campus or on wireless on campus and you do not get access to a resource that the library subscribes to, try reloading the page using the [Proxy Server Bookmarklet](http://www.lib.umich.edu/mlibrary-labs/proxy-server-bookmarklet). Instructions to install the bookmarklet can be found at <http://www.lib.umich.edu/mlibrary-labs/proxy-server-bookmarklet>.

#### **Questions About Library Resources and Services:**

Please contact your liaison librarian:

Leena Lalwani (BME, ChE, MSE, NAME) [llalwani@umich.edu](mailto:llalwani@umich.edu) 734-936-2332

# SECTION 3

## LAB SAFETY AND RESEARCH FACILITIES

Commented [1]: @hamlins@umich.edu Sorry it took me so long but I think this should be good to go. I deleted the list of lab safety officers since I don't have an updated list.

### 3.1 LABORATORY SAFETY

As a researcher in the ChE department, you are responsible for developing and implementing good safety practices in the laboratory. These good practices are extremely important because the labs in our department contain a variety of dangerous chemicals and machinery. One careless move can result in significant injury or damage. There has been a number of serious injuries and even fatalities in academic research institutions world-wide. Recently, a visiting researcher lost an arm in an explosion at the University of Hawaii. In 2008, there was a fatality of a lab assistant, as a result of a laboratory accident, in a UCLA chemistry lab. We take safety seriously and expect you to do the same.

#### 3.1.1 SAFETY TRAINING

University of Michigan's Environment, Health, and Safety (EHS) has online training through the University of Michigan's Learning and Information Center (MyLINC) at <https://maislinc.umich.edu/>. A complete listing of all safety courses by EHS are listed in a PDF at <http://ehs.umich.edu/education/ehs-training-login/>

Before starting in the research laboratory, you **MUST** complete the Online **Chemical Laboratory Safety (EHS\_BLS025w)**. Depending on the activities in your research laboratory, additional training courses may be needed. Most of the required courses are available online but there are some that require a scheduled training course. Some of these other training courses are listed below:

- EHS\_BLS005w\_TAB - Laser Safety Basic Training
- EHS\_BLS013w\_TAB - Autoclave Operation and Safety Procedures Training
- EHS\_BLS032w - U-M NCRC Autoclave Operation and Safety Procedures Training
- EHS\_BLS023\_TAB - Centrifuge & Rotor Safety Training
- BLS026w\_TAB - Hydrofluoric Acid and Ammonium Fluoride Safety in the Lab
- EHS\_BLS100w\_TAB - Bloodborne Pathogen (BBP) Training
- EHS\_BLS101w\_TAB Biosafety and Bloodborne Pathogens Training (for labs working with BSL2 biological agents).

#### 3.1.2 GENERAL SAFETY RULES

1. Prior to working in the laboratory, read the chemical hygiene plan (CHP) online <http://ehs.umich.edu/research-clinical-safety/chemical/> as well as the CHP Blue Binder that is specific to your lab. More information on the CHP is in section 3.1.2, below
  - a. Create a safety Standard Operating Procedure (SOP) for all experiments that you set up. Check with the Chemical Safety Hygiene Officer (CHO) in your research group to find out where to post it. Templates to assist you in writing a SOP can be found on the OSEH website: <http://ehs.umich.edu/research-clinical-safety/chemical/>

- b. You must read the Safety Data Sheet (SDS) for all chemicals you will be using.
2. Wear appropriate personal protective equipment while working in the laboratories.

- a. Always wear eye protection when in the laboratories. You may wear goggles or safety glasses with side shields. You can get a pair of prescription safety glasses from the university (at no cost to you) if needed.

Instructions to get prescription safety glasses can be found in the following EHS webpage; <https://ehs.umich.edu/prescription-safety-glasses-request/>. Please contact the ChE Department Manager, Pam Bogdanski or contact your appropriate EHS representative (listed in section 3.1.3) if you have trouble completing the proper forms.

If for some reason you cannot or do not wish to wear prescription safety glasses, several styles of “Over the Glasses” (OTG) safety glasses are available to try on and find one that is comfortable and works best for you. Contact your EHS representative or Dr. Barr in the CHE department to find out more about obtaining a pair of OTG safety glasses.

- b. Wear a lab coat when in the lab. Do not wear the lab coat outside the lab!
  - c. When handling chemicals, wear protective gloves and safety glasses with side shields or chemical goggles. Remember: **Not all gloves are compatible with all chemicals.** Glove compatibility charts can be found through vendors or through EHS at <https://ehs.umich.edu/research-clinical/planning-safe-research/glove-compatibility-chart/>
  - d. Gloves should NOT be worn outside of the laboratories due to the possibility of cross-contamination.
3. Be aware that certain clothing and accessories may affect laboratory safety.
- a. Do not wear contact lenses in the laboratory, even under safety glasses. They may compound eye damage in the event of an injury.
  - b. Remove rings, watches, bracelets, necklaces and large earrings when working with tools, machines, or dangerous chemicals. These items not only can get caught on tools or machinery but may react with chemicals depending on the material of the jewelry.
  - c. Wear clothing that will provide maximum protection from chemical splashes or flying debris. Shirts or tops must cover the upper torso. Shorts, skirts or pants that leave any part of the leg

exposed are prohibited in the laboratory.

- d. Wear close-fitting clothing made of natural, tightly woven fabrics. Bulky sweaters, shirts, or blouses should not be worn.
  - e. Wear closed-toe shoes that completely cover your feet to protect them from splashes. Sandals, open-toed shoes, open-weave shoes, shoes with holes and high-heeled shoes are prohibited. Shoe material should not be readily absorbent; leather that is easily cleanable is recommended. Good shoes will be slip resistant, protecting the wearer from chemical splashes, hot liquids and sharp objects.
  - f. Long, loose hairstyles must be safely contained in a scarf, cap, or other appropriate fashion.
- 4. NO horseplay in the laboratory.
  - 5. NO food or beverages in laboratory spaces.
  - 6. Anytime chemicals must be moved outside of the lab, they must be in a secondary container to prevent spills if the primary container should break. Chemicals should be moved from laboratory to another without stops in non-laboratory spaces. Gloves must NOT be worn outside of the laboratories due to possibility of cross-contamination.
  - 7. Report any injury or accident, no matter how small, to your advisor, lab chemical safety hygiene officer (CHO), and/or ChE safety committee member. To report to the safety committee, please email [che-safety@umich.edu](mailto:che-safety@umich.edu).
  - 8. When lifting heavy objects, lift with your legs as opposed to your back to prevent injury. Do not store heavy objects or large chemical containers above shoulder level.
  - 9. Be aware of the many high voltage sources in the department. Exercise extreme caution when doing work on the electronics of a machine, and always turn off the power and unplug the cord. However, remember that capacitors can store charge for quite some time even after the power has been turned off. Never attempt to work on electrical equipment if you haven't been trained or aren't sure what you are doing; contact Dana Jackson at [dmjacks@umich.edu](mailto:dmjacks@umich.edu) or contact University of Michigan's Facilities and Operations at 7-2059.

## 10. FINDING SAFETY INFORMATION

### Within your laboratory/research group:

Each laboratory has a Chemical Hygiene Plan (CHP) Blue Binder either on or near the door. The Blue Binder contains a variety of information, including a list of the chemicals in the room and SOP's (Standard Operation Procedure) for all equipment and activities that occur in the laboratory.

Each research group has a **safety officer** (Chemical Hygiene Officer) who is in charge of implementing and enforcing safety regulations in those laboratories belonging to his or her advisor. Safety officers meet regularly to learn about new safety procedures being implemented by the university. You should go to your safety officer if you see a safety problem in your lab or are unsure of how to conduct an experiment safely.

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### Within the ChE Department:

The Chemical Engineering department has a safety committee consisting of faculty, staff, and graduate student representatives that meet at least once a semester. You can reach the chemical engineering safety committee by emailing [che-safety@umich.edu](mailto:che-safety@umich.edu). The safety committee currently consists of:

- Prof. Henry Wang, Safety Committee Chair
- Prof. Johannes Schwank, Faculty
- Dr. Christopher Barr, Undergrad Instructional Lab Supervisor
- Nahal Habibi, Graduate Student Representative
- Dana Jackson, Facilities Manager

### Within the College and University

Environment, Health, and Safety (EHS) within the university can be a great source for information. Depending on the location of your labs (North Campus vs. NCRC), some representatives might be different.

#### **Laboratory Safety**

Josh Bennett, North Campus – [bennut@umich.edu](mailto:bennut@umich.edu)

Shannon Weger, N.C.R.C. – [sweger@umich.edu](mailto:sweger@umich.edu)

#### **Fume Hood/Biological Safety Cabinet Certifications**

Julie Gallup – [jgallup@umich.edu](mailto:jgallup@umich.edu)

#### **Biosafety**

Crystal O'Donnell – [ocrystal@umich.edu](mailto:ocrystal@umich.edu)

#### **Radiation Safety Technician**



Philip Keavey – pkeavey@umich.edu

**Radiation Safety Health Physicists**

Russ Garcia – garciaru@umich.edu

Justin Quinn, North Campus – quinnja@umich.edu

Dennis Palmieri, N.C.R.C – dapalm@umich.edu

Before you use any chemicals, you should research the hazards, if any, associated with their use. EHS has a database containing Safety Data Sheets (SDS) on most chemicals. <https://ehs.umich.edu/research-clinical/chemical/safety-data-sheets/>. EHS is also available to assist you in doing a risk assessment for chemicals you plan to use.

**Other References**

For additional chemical hazard identification references, the Art, Architecture & Engineering Library, located in the Duderstadt Center, also has copies of the *Merck Index* and Irving Sax' *Dangerous Properties of Industrial Materials* but they must be requested beforehand as physical copies are now stored off-site.

The Merck Index

RS356.M555 1996

Dangerous Properties of Industrial Materials, Sax, Irving T55.3 H3 S27 1992

There is also a program called the Chemical Reactivity Worksheet available from AICHE that can be used to estimate reactivity of chemical mixtures which can be found at: <https://www.aiche.org/ccps/resources/downloadinstall>

### 3.1.3 PERSONAL INJURY, FLOOD, CHEMICAL SPILL, OR FIRE

#### **Injury**

If a person is seriously injured or seriously ill on the job, call 911 from a campus phone immediately and request an ambulance. (NOTE: If you call 911 from your cell phone, you will get connected with the Washtenaw County emergency dispatcher. Let them know you are calling from the University of Michigan so they transfer you to the University dispatcher). The injured person will then be transported to the nearest Emergency Room.

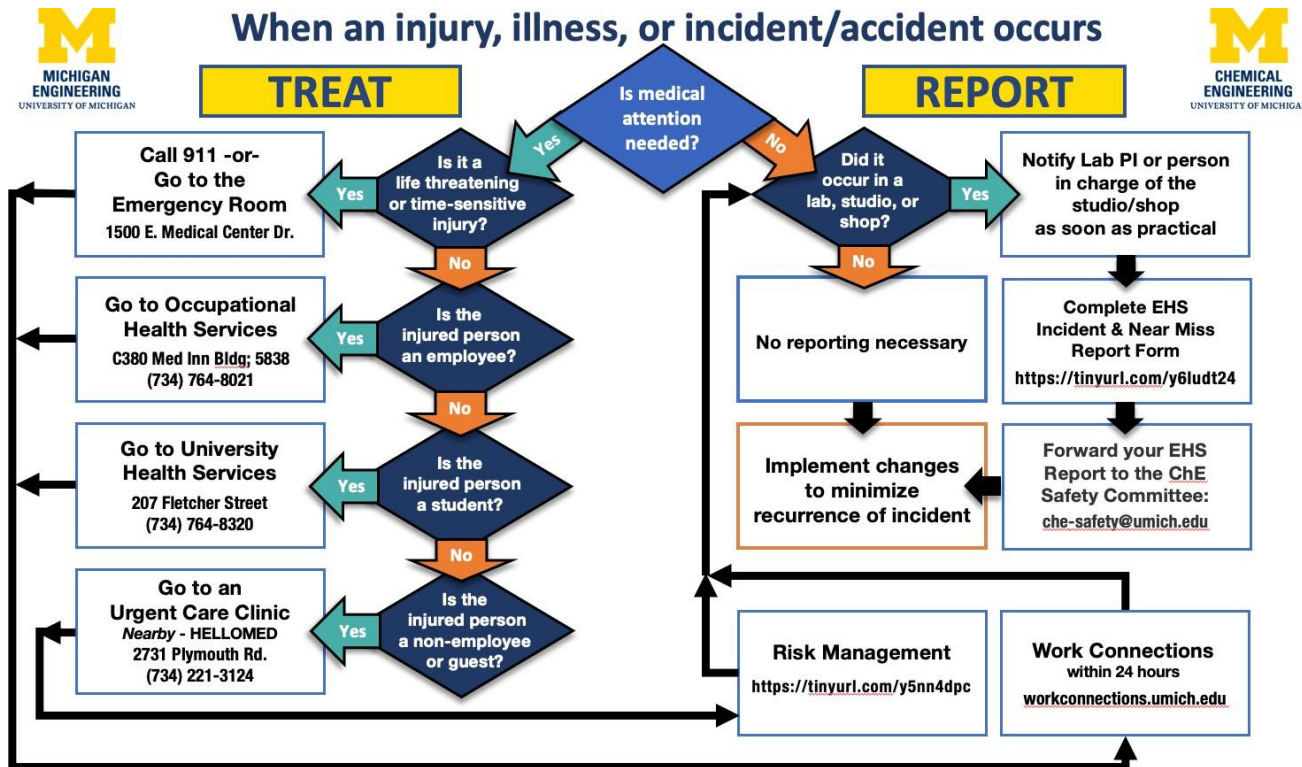
The injured person's supervisor must fill out an "Illness or Injury Report Form" and submit it to the Risk Management office within 24 hours. The form can be downloaded from the following site:

<http://www.workconnections.umich.edu/forms.html>

If the injury is less severe but still requires medical treatment, the person should be transported to Occupational Health Services (OHS), inside Med Inn at the U-M hospital, provided the injury occurs on weekdays between 7:30 a.m. to 4:30 p.m. OHS is run by the University of Michigan, and is specifically set-up to deal with workplace injuries of U-M employees. (All research and teaching assistants are employees of the university.) The clinic is located at C-380 Med. Inn Building, U of M Hospitals. The injured person should preferably be accompanied by a supervisor and should have the "Illness or Injury Report Form" filled out within 24 hours of the incident describing the nature of the injury. If the injury occurs on an evening, weekend, or holiday, the person should be transported to the nearest Emergency Room. As in the case of a major injury, the injured person's supervisor must also fill out an "Illness or Injury Report Form" and submit it to the Risk Management office.

For directions to OHS, visit:

[https://hr.umich.edu/sites/default/files/ohs\\_driving\\_directions.pdf](https://hr.umich.edu/sites/default/files/ohs_driving_directions.pdf)



### **Water**

If there is water in a lab where it is not supposed to be (e.g., from roof leak, ruptured water line, etc.) call the Facilities and Operations Service Center at 7-2059 from a university phone (or 734-647-2059 from your cell phone) at any time to report the problem and request immediate service. During the day, please notify a member of the ChE staff immediately. After working hours, call the Department of Public Safety at 3-1131 from a university phone (or 734-763-1131 from your cell phone).

### **Hazardous Chemical Spill**

If you spill a hazardous chemical, use your best judgment on how to deal with it. If it is a small spill and there is no immediate danger of inhalation or personal exposure, explosion, or fire, you should use the appropriate spill kit to clean it up. Do not dispose of the waste in the trash. Place the waste in an appropriately labeled hazardous waste container. Notify a member of the ChE staff as soon as possible.

If the spill is large and obviously hazardous, or you are not confident in your ability to safely clean up the material, call 911, notify ChE staff personnel (if possible), and leave the lab. Be sure to remain in the area to give direction to emergency personnel and provide information regarding the chemical spilled to emergency responders.

### **Fire**

If a fire starts in your lab, use your best judgment on what to do. Never attempt to use a fire extinguisher if you have not been trained on its use. If you are confident that you can put it out with one fire extinguisher, do so. (For example, a small alcohol fire in a Petri dish can probably be put out easily.) Remember to aim at the base of the fire. Notify a member of the ChE staff as soon as possible.

If you have any doubts at all about being able to put the fire out, do not attempt to do so. Instead, leave the lab, pull the fire alarm, call 911 and then leave the building. Notify ChE staff personnel (if possible). The alarm will alert people to evacuate the building and will summon the fire department. Fire alarms are located in corridors throughout the department. Be sure to remain in the area outside the building to give direction to emergency personnel and provide information on materials involved in the fire to emergency responders.

Special note: The fire extinguishers in the department are designed to put out a wide variety of fires, including oil fires, paper fires, etc. They are NOT designed to put out metal fires (such as burning Na or K.) For accidents, incidents, and near-misses, you must fill out an [Incident and Near-Miss form](#) which can be found on EHS's website.

### 3.1.4 Waste Disposal

#### **Hazardous Waste**

It is important that hazardous waste be disposed of properly. Chemicals cannot simply be dumped down drains or placed in regular trash containers, nor can broken glass, syringes with needles, or razor blades be tossed in the trash. Waste chemicals must be labeled, packaged up, and then picked-up by EHS for disposal.

Contact the laboratory chemical hygiene officer for the proper procedures for disposal of waste chemicals. Waste containers, labels, and hazardous waste manifests can be obtained from EHS Hazardous Materials Management group online at <http://ehs.umich.edu/haz-waste/request-collection-and-supplies/> or via phone at 763-4568.

#### **Hazardous Waste Representatives**

Dan Maue, North Campus – [dpmaue@umich.edu](mailto:dpmaue@umich.edu)

Tim Forbush, N.C.R.C – [forbusht@umich.edu](mailto:forbusht@umich.edu)

#### **ChEM Reuse Program**

The Chemical, Equipment, and Materials (ChEM) Reuse program is a part of Office of Campus Sustainability. It is a repository of unexpired and unused chemicals, equipment, or materials that are available to you for use in U-M research and teaching laboratories located on the Ann Arbor campus. The program enables U-M research and teaching laboratories to obtain available chemicals, equipment, and materials free of charge and/or donate surplus chemicals, equipment, and materials into this program for redistribution to others who may find a need. To request items available through the ChEM Reuse Program or to donate items, more information can be found at their website at: <https://ocs.umich.edu/programs/waste-reduction/chem-reuse/>

### 3.1.5 GENERAL BUILDING PROBLEMS

#### **University Facilities and Operations ext. 7-2059**

Dana Jackson ([dmjackso@umich.edu](mailto:dmjackso@umich.edu)) is responsible for managing service requests for the ChE department in all buildings (NCRC, Dow, and GG Brown). This would include requests such as minor building repairs, office temperature issues, custodial issues, etc. as well as any major building issues or safety issues.

If Dana is not available, you can either call Facilities and Operations Service Center at 7- 2059 (from your cell phone use (734) 647-2059) or submit an online request at <https://requests.fo.umich.edu/>. Note: Online requests may not be addressed for 24 hours. If it is an emergency, use the phone number as they are open 24 hours a day, 7 days a week. Please do not wait until next weekday to

report a building problem. A small leak one minute can become a major disaster after 3 days! The service center will send you an email that you should forward to Dana so that he can follow up on repairs.

**If the nature of your call is an emergency (priority #1), stay close to the problem area so that the person who comes to investigate can easily find you.**

Should you have an emergency problem requiring entry to the service corridors after hours (for example - an open circuit breaker or need to open or close a valve) call the DPSS at 763-1131, and make your request for entry. Be sure to give your location, and the reason for entry. Then stay close to the job!

**Building Services-ext. 4-0521**

If you notice a problem with water on the floor, other spills, or missing supplies in the restrooms, then Building Services should be called at 4-0521 for their help.

## **3.2 LABS AND FACILITIES**

### **3.2.1 MICHIGAN CENTER FOR MATERIALS CHARACTERIZATION ((MC)<sup>2</sup>)**

(MC)<sup>2</sup> is the new College of Engineering's shared microscopy and characterization facility. (MC)<sup>2</sup> houses state-of-the-art equipment, including aberration corrected transmission electron microscopes, dual beam focused ion beam / scanning electron microscopes, an x-ray photo-electron spectrometer, a tribo-indenter, an atomic force microscope, and an atom probe tomography instrument. (MC)<sup>2</sup> is located on the first floor of NCRC Building 22. A complete list of equipment and instrument scheduling can be found on its website: <http://mc2.engin.umich.edu/>

### **3.2.2 SHOP SERVICES AVAILABLE**

You may use the Chemistry Department Instrument Shop and Glassblowing shop on central campus or Lay Automotive Machine shop for machining services. They are a full-service instrument shop. There is also a student shop there that is well maintained and equipped (it has a milling machine and a lathe). ChE students can use the Chemistry Department Student Shop if (and **only** if) they complete a short training class offered periodically by the Chemistry Shop staff. Contact the shop supervisor at 764-7363 for more information.

### **3.2.3 USING THE SERVICES OF THE UNIVERSITY PLANT DEPARTMENT**

The plant department includes the electric shop, the sheet metal shop, the carpenter shop, the air conditioning unit, the moving and shipping group, and several other units. The plant department will provide service to you through the use of a work request form. This form must be filled out with your project number, contract number, name, and an adequate description of the work you need done. After an authorized person signs it, you must forward it to the central orders department at 326 East Hoover (telephone number 647- 2059). You can also fax it in using fax number 763-2932.

Your project will be sent to the appropriate service group for completion. If the job is simple the appropriate trades person will deal it with directly. If the job is large and complicated, your project manager should initiate it because it will probably involve plant engineering and should be part of your contract.

Be aware that a simple plumbing or electrical request can be very expensive to your contract or grant. Requests for quotations are always referred to the plant engineering department, and your account will be charged a fee for the quote whether you do the work or not. Plan as carefully as possible to avoid laboratory modifications. Always check with your advisor regarding such modifications.

#### **3.2.4 CONFOCAL LASER SCANNING MICROSCOPY (CLSM)**

As the result of the NSF Major Research Instrumentation Program, the department has acquired a confocal laser-scanning microscope to support chemical and biomolecular engineering research. Confocal laser scanning microscopy (CLSM) is a technique pioneered in the life sciences for 3D fluorescence or reflection imaging of both physical and life science specimens. With oil immersion high numerical aperture objectives, submicron resolution of structural and dynamical features of cells, particles and self- assembled structures is possible by CLSM. The instrument supports research of more than ten different groups, including those working in biomaterials, nanotechnology, microfluidics, biomolecular engineering and complex fluids. Our particular instrument is a Leica TCS SP-2 on a DMIRE-2 inverted microscope with 3-channel fluorescence and 1 reflection channel.

#### **3.2.5 CLEAN ROOM FACILITY**

The Chemical Engineering clean room or a class 1000 clean room located on the 3rd floor of the H.H. Dow building. The cleanroom includes capabilities to process SU- 8, glass and poly(dimethylsiloxane). Specific equipment is detailed below.

E-Beam Evaporator (Gold/Chromium/Oxide/Titanium), Mask Aligner, Photoresist and SU8 Spinners, Gold and Aluminum Wire Bonders, Parylene Coater, Surface Profilometer, Acid, Base, Solvent and Photoresist Fume Hoods, Oxygen/Argon Plasma Reactive Ion Etcher, Heated Hydraulic Press

Contact: Brian Johnson - (734) 764-8130, brianj@umich.edu

#### **3.2.6 MAMMALIAN CELL CULTURE LAB**

This is a lab for the culture of mammalian cells that is used by faculty and students in Chemical Engineering. Lab contains basic equipment needed for cell culture including incubators, microscopes, centrifuges, and laminar flow hoods.

Contact: Professor Jennifer Linderman 763-0679 linderma@umich.edu

#### **3.2.7 MULTISCALE NEAR-INFRARED (NIR) FLUORESCENCE IMAGING**

The Thurber Laboratory has dedicated a room for multi-scale near-infrared (NIR) imaging and will share this opportunity with others in the department. The equipment includes an Odyssey CLx scanner for macroscopic imaging and Olympus FV1200 confocal microscope equipped with two NIR lasers (and visible confocal microscope equipped with two NIR lasers (and visible light channels).

Contact: Professor Greg Thurber at [gthurber@umich.edu](mailto:gthurber@umich.edu).



# SECTION 4

## GRADUATE PROGRAM INFORMATION

## 4.1 GRADUATE DEGREE REQUIREMENTS

### 4.1.1 GENERAL REQUIREMENTS

This section provides a brief overview, with some information specific to the ChE graduate program. Refer to the Rackham Graduate Student Handbook for a complete list of the Rackham requirements for any graduate degree.

<https://rackham.umich.edu/academic-policies/>

Also refer to the ChE Department website for the additional departmental requirements. <https://che.engin.umich.edu/graduate/current-students/>

#### 4.1.1.1 COGNATE COURSES

All graduate students (M.S.E. and Ph.D.) entering without a previous graduate degree must take at least three credits outside the ChE dept. Students typically take cognate courses within their research interests. These cognate courses must be in a technical area, and are usually satisfied at the graduate level, though 400 level courses can also satisfy cognate requirements. PhD students may be able to use a ChE course as a cognate course if it is cross-listed with another department. The list of cognate courses that were taken by our graduate students during the past two years are included on the ChE department website, <https://che.engin.umich.edu/graduate/program/degree-requirements/>. You can check Rackham's website to check for graduate level status (using your username and kerberos password).

[https://secure.rackham.umich.edu/academic\\_information/programs/#annarbor](https://secure.rackham.umich.edu/academic_information/programs/#annarbor)

#### 4.1.1.2 RESEARCH/REGISTRATION

With the exception of the first semester, graduate students typically enroll in one of the research "courses" (ChE 695 or 995) during the Fall and Winter terms.

Master students and pre-candidates should enroll in ChE 695. Candidates should enroll in 8 hours of ChE 995. The faculty research advisor will work closely with the student to establish a research program, and officially evaluate the student's research progress through the grading of ChE 695 or 995. To maintain full time status, international master's students should be enrolled in at least 8 credits each term and pre-candidates should be enrolled in at least 9 credits/term. Second-year PhD students can take 3 additional credits of 695 beyond their first year to meet the minimum of 21 ChE credits required for the degree. ChE 990 or 995 do not count toward the degree.

#### 4.1.1.3 CPT REGISTRATION

International PhD students who plan on holding an internship in the summer must apply for CPT and register retroactively for one credit hour of Eng 998 in the previous Winter term. If you are thinking of interning, please save one credit hour of your four "free credits" with each candidacy registration, so that you can register in Eng 998 without additional tuition charges. See Susan Hamlin for details.

<https://che.engin.umich.edu/graduate/current-students/curricular-practical-training-for->

f-1-students/

#### **4.1.1.4 DEPARTMENT SEMINAR SERIES**

All students should register for 1 credit of ChE 601 each term (ChE Seminars) and attend the seminars. Credits earned from ChE 601 may not be used for fulfilling the Ph.D. degree requirements. Please note that Master's degree students are allowed to count a maximum of two credits of ChE 601 toward the degree.

#### **4.1.2 MASTER OF SCIENCE IN ENGINEERING - MSE**

Students seeking a MSE degree must complete 30 credit hours of courses, which must be approved by the graduate advisor. Of the 30 credit hours, a maximum of 6 credit hours may be satisfied by ChE 695 and include a minimum of 21 credit hours of ChE credit hours. In addition, a minimum of 3 credit hours of cognate courses is required. See the department website for complete information.

#### **4.1.3 DOCTOR OF PHILOSOPHY - PhD**

A minimum of 36 credit hours is required for the PhD degree in chemical engineering. Students who fulfill the M.S.E. requirements need to take at least two additional ChE or related courses. There are additional requirements (including the successful completion of College of Engineering Responsible Conduct of Research & Scholarship/RCRS training, <https://rcrs.engin.umich.edu>) as described below and on the department website.

Students entering the PhD program with an undergraduate degree in chemical engineering are expected to take the Doctoral Candidacy Examination (DCE) during their first year in the program. After passing the DCE, the student can advance to candidacy (provided the cognate course requirement and RCRS training have been met). Students take the Thesis Proposal Exam (TPE) during their second year in the program. A master's degree is not a prerequisite for candidacy or for a PhD degree.

##### **4.1.3.1 DOCTORAL CANDIDACY EXAM REQUIREMENT**

The DCE is an opportunity for PhD students to demonstrate their potential for completing an excellent PhD dissertation. Students with undergraduate degrees in chemical engineering who enter the Ph.D. program in the Fall term must take the DCE in May of their first year. This exam includes three components: academic performance, as judged by GPA in the five core ChE courses (505, 527, 528, 538, 542), potential for research, as judged by the research advisor, and performance in research, as judged in an oral research exam by a faculty committee. One week prior to the oral research exam, the student will submit a written research report. At the oral Research Exam, the student presents this research and answers questions from the faculty committee. The entire faculty, after reviewing each student's academic performance, research performance, and potential for research, will decide by majority vote whether a student has passed or failed the DCE. Students who fail the DCE on their first attempt may petition the graduate office to take the exam a second time (typically in Summer of that same calendar year).

#### **4.1.3.2 THESIS PROPOSAL EXAM**

The Thesis Proposal Exam is an opportunity for PhD students to demonstrate to a faculty examining committee that they can do high-quality research that will lead to an excellent PhD dissertation. New PhD students are required take the Thesis Proposal Exam no later than May 31 in the year after passing the DCE. For most students entering the program in the Fall, the typical time to take the Thesis Proposal Exam would be during their second year in the graduate program.

The student first prepares a written report that contains a critical review of the background and relevant literature, a statement of the research objective, a collection of the results, a thorough analysis of the results, and a plan for future research. This report is submitted about one week prior to the oral examination. At the oral exam, the student will present their research results and research plan and respond to questions from the faculty examining committee.

The Thesis Proposal Exam committee, with members selected according to Rackham dissertation committee selection requirements, is expected to become the doctoral thesis committee. The committee will decide whether the student has passed or failed the Thesis Proposal Exam. See the department website for more details.

#### **4.1.3.3 TEACHING REQUIREMENT**

Each student is required to serve as a Graduate Student Instructor (GSI) at least once prior to the completion of the PhD degree. Many students serve as a GSI more than once because they desire to do so for professional development or need to do so for financial support.

#### **4.1.3.4 PUBLISHING REQUIREMENT**

Sharing research results with the broader scientific community and the public is an essential part of the academic research enterprise. As you progress in your PhD studies, you should be preparing manuscripts for publication in scholarly journals. In addition, you should be presenting your work at conferences, either through contributed talks or posters. Each PhD student is required to give at least one research presentation at a technical meeting outside U-M and to have at least one first-author manuscript accepted for publication prior to graduation. Please note that this requirement is the minimum and that most students will do enough high- quality research to generate several first-author publications.

#### **4.1.3.5 ANNUAL PROGRESS REPORTS**

Each PhD student must complete an annual report (typically in June) that reports on progress made toward the degree and plans for the year ahead. The report is completed in consultation with your research advisor. Timely submission of the report is required for continued financial support.

#### **4.1.3.6 DATA MEETING**

A PhD student who is near the completion of his/her PhD research and is ready to start writing should hold a data meeting with his/her dissertation committee. At this meeting, the dissertation committee is expected to approve the ending of research and recommend that the student begin writing the dissertation. This is typically done two to three months before the proposed dissertation defense date. The student is responsible for submitting the “Data Meeting Form” within one week of the data meeting to the ChE graduate program office.

#### **4.1.3.7 THESIS AND THESIS DEFENSE**

A high-quality thesis and its public defense are required for the PhD degree as set forth by the Rackham Graduate School.

#### **4.1.4 THE GRADUATE COMMITTEE**

The Graduate Committee comprises three or four faculty members, the graduate coordinator, and two or three graduate student members. The graduate program chair serves as chair of the Graduate Committee.

The Graduate Committee is charged with the general oversight of the graduate program in Chemical Engineering. The Graduate Committee also coordinates the recruiting and admission of new graduate students into the department. Primary responsibilities include matters related to graduate degree requirements as set forth by the department and by the Rackham Graduate School. Of major importance are the graduate curriculum and examination requirements for the PhD degree.

#### **4.1.5 CURRICULUM**

The Graduate Committee has the responsibility for evaluating the curriculum and, when appropriate, recommending that changes in course offerings and/or course requirements be instituted.

#### **4.1.6 EXAMINATIONS**

There are two doctoral degree-related examinations: *Doctoral Candidacy Exam (DCE)*, and Thesis Proposal Exam (TPE). Details of these examinations were given in the subsection on Graduate Degree Requirements. The graduate student and his/her advisor have responsibility for establishing the Thesis Proposal Exam Committee. The Graduate Program Chair has the responsibility for organizing and administering the DCE. The ChE faculty reviews the performance of each student on the DCE and determines if performance is sufficient to merit passing.

#### **4.1.7 GRADUATE CHAIR**

The Graduate Chair serves as an interim advisor for new students until they secure a research advisor. Students should work closely with their research advisor in the selection of courses within the department and cognate courses.

#### **4.1.8 ChE CLASSES**

A complete list of ChE classes is available on the department website. Note that

some of the classes listed might be taught infrequently, depending on the availability of staff. <http://www.engin.umich.edu/bulletin/cheme/courses.html>

## **4.2 RESEARCH ADVISOR ASSIGNMENTS**

Every PhD student will be matched with a professor who will serve as your research advisor. This interaction with your advisor/mentor is one of the unique aspects of the PhD experience. The Graduate Chair will make these matches on the basis of the student's preference, the advisor's preference, and available funding. New PhD students are encouraged to arrange appointments with faculty members of potential interest so they can learn about research opportunities in their lab, meet current students in that research group, and perhaps attend some research group meetings. Every ChE professor will make a short presentation about his/her research as part of the ChE 595 class. After all of these presentations have been completed (in early October), PhD students will be asked to submit a ranked list of their preferences for research advisor. The advisor's role is very important in shaping your graduate school experience, so serious consideration should be given to this choice. Most students typically get their first or second choice for their research advisor.

Masters students may also join research groups and engage in laboratory work, though doing so is not required for the MSE degree. Masters students may indicate their research group preferences at the same time as the PhD students. The matching process is separate from that used for the PhD students because no financial support is guaranteed for Masters students.

## **4.3 OUTSIDE EMPLOYMENT**

PhD students receiving financial support through fellowships, GSRA or GSI appointments are considered full-time students. Any student receiving financial support who is considering employment outside the department must discuss the advisability of such employment with and receive approval from the student's research advisor and the Graduate Chair.

## **4.4 ACADEMIC PROBATION AND DISMISSAL**

Students should meet with their advisors regularly to discuss their academic performance and progress toward the degree. The ChE Graduate Program will notify students in writing when performance falls below an acceptable level. The Graduate School may take any of the following actions when a student's academic performance is deficient:

- place a continuing student on academic probation;
- require a student to withdraw from the University; or
- not confer a degree or certificate.

### **Unsatisfactory Academic Standing**

In accordance with its published policy, the Chemical Engineering Graduate Program may place a student on academic probation if the student has not maintained satisfactory

academic standing. The following situations indicate unsatisfactory academic progress.

- 1) GPA falls below 3.0
- 2) Failure to pass the Doctoral Candidacy Exam (DCE)
- 3) Failure to pass the Thesis Proposal Exam (TPE)
- 4) The annual PhD student evaluation form completed by the student and the advisor indicates “unsatisfactory progress”, or when the advisor otherwise notifies the student and the graduate program
- 5) The student leaves his/her research group without securing a new dissertation advisor
- 6) There are serious concerns regarding the student’s performance and/or ethical behaviorThe Graduate School will place a notation of “below minimum academic requirements” on the academic record at the end of the term in which a student’s cumulative GPA falls below a B (3.0 on a 4.0 point scale). Upon the recommendation of the ChE Graduate Program committee, and with the consent of the Graduate School, a student will be given an opportunity to correct the academic deficiency and return to good standing.

<https://rackham.umich.edu/policy/section3/>

In the case of failure to pass the DCE or the TPE, students can petition the ChE Graduate Program to retake the exam. If approved, students must successfully complete the exam within six months to achieve satisfactory progress. Only one retake of the exam is allowed. If a student fails to pass the retake exam, the student will be dismissed from the program.

#### **Appeal to retake the DCE or TPE**

Student should first meet with the graduate program chair to learn the deficiencies on the exam. The appeal should include plans for improvement as recommended by the examining committee. The ChE Graduate Program committee will make the decision whether to approve the appeal and notify the student within three days after receiving the student’s request.

#### **Program Benchmarks for Satisfactory Progress**

In addition to passing the DCE and the TPE, students are expected to:

- Meet regularly with research advisor

By end of second year-

- form dissertation committee

By end of third year-

- Present talk or poster within UM (ChE department, Engin. College, etc.)
- Submit manuscript for publication in a peer-reviewed journal or develop research work plan for the next academic year that will likely lead to a manuscript submission in that time frame
- Meet with dissertation committee members (optional)

By end of fourth year-

- Hold data meeting or otherwise meet with dissertation committee and submit the data meeting form to the graduate program

Any time prior to defense (all required):

- Serve as GSI in a ChE class
- Deliver a talk at an external meeting (e.g., AIChE, ACS, MRS, etc.)
- Have at least one first-author publication in a refereed journal

<https://che.engin.umich.edu/graduate/current-students/>

### **Placing a Student on Academic Probation**

When an advisor has notified the student and the ChE Graduate Program that a student is not making satisfactory academic progress, the Graduate Program requires the following:

Advisor and student

- 1) meet to discuss the unsatisfactory progress
- 2) document steps for student to get back on track to making satisfactory progress
- 3) send an email to the graduate program listing the agreed-upon action plan/research goals and the time line. The time line should be no longer than three months from the then-current date. The plan should be submitted within two weeks.

The ChE Graduate Program will review the plan and determine the terms of the probation.

The Graduate Chair will follow up with a written notification to the student and the

Rackham OARD. The notification will include:

- explanation and conditions of probation
- start and end dates of probation
- funding support
- conditions for returning to satisfactory standing
- options for appeal, if any

### **Appeal Process**

The student should submit documentation explaining the reasons for lack of progress and include the planned benchmarks to return to satisfactory academic progress. The Graduate Program Committee will make the decision whether to approve the request and notify the student within three days.

A student who has been placed on probation may request a leave of absence from Rackham or withdraw. The leave or withdrawal will stop the clock on the probationary period, which resumes when the student returns to active status or is reinstated. Probation will remain in effect until the conditions are remedied or the student is dismissed.

### **Length of the Probationary Period and Funding**

The probationary period will not be shorter than two months of the fall or winter term and ordinarily conclude at the end of that term. For a student placed on probation within two months of the end of the fall term, the probationary period will extend into the winter term for a total of at least two months. For a student placed on probation within two months of the end of the winter term, the probationary period may include the spring or summer half-terms or the following fall term, for a total of at least two months. A student may be placed on probation starting in the spring or summer half term for a minimum of two months and does not need to be enrolled during these half terms.



The student's research advisor is expected to maintain funding during the probation period when the student is working toward making satisfactory progress, as a student in his/her research group. When a student voluntarily leaves a research group, it is the student's responsibility to secure new advisor support on a funded project as soon as possible so that there is no gap in funding. If a gap in funding occurs, the student may be asked to hold a GSI position.

#### **End of the Probationary Period and Dismissal**

At the end of probation, and upon the recommendation of the ChE Graduate Program and the consent of the Graduate School, a student may either be returned to good academic standing or dismissed from the program. The decision to dismiss a student will be made by the graduate program committee. The graduate chair will notify Rackham OARD of a recommendation for dismissal.