Urgent Recovery

*Under emergency conditions would your research group be able to be productive...*

No

*What critical aspects of your operations would need to be recovered within 30 days?*

Unusual Resources Needed

*What resources need to teach course*

TEACHING could be carried out remotely, if necessary, via the WEB and Skype. CU should consider a plan to broadband hook up all faculty by entering negotiations with Time Warner. RESEARCH relies on CNF and once the CNF is inaccessible, research stops. Literature research, student thesis revisions etc could continue via high speed access, see previous.

*Hazards to your research & teaching operations*

Comments: Hook up all faculty via high speed access. There is lot that can be done in an emergency via the web, skype, web conferences etc etc. Currently, some faculty has high speed access, other do not for technology and financial reasons.

Paper Data

*Describe Critical Paper documents:*

Lots... if the building were to burn down there would not be recovery for a long time. Consider long term to outfit all engineering departments with sprinklers. Bard now contains considerable amounts of flammable organics but is grandfathered from sprinkler requirements.

*Is it backed up?*

No

*Where is your paper data stored?*

My office

*Where are the backups stored?*

What is the address
### Barriers to backing up paper data?
- Availability of scanners, time to scan etc etc. If I scan anything I use our office copier that has automatic paper feed and mails pdfs

### Which part isn't backed up
- Comments: Like all things in life, a balance between cost and probability. But high speed from home access for all members of the CU community and sprinkler retrofit of all grandfathered buildings might be worth a look to see if they could be cost effective.

### Electronic Data Backup
- **How much of your electronic data is backed up?**
  - Some

- **How do you get your data backed up?**
  - [ ] Research Group
  - [ ] Department IT Staff
  - [ ] Research Center IT Staff
  - [ ] CIT’s EZ Backup
  - [ ] Other
    - Degree of data back up is a function of areal extend of destruction. Data backed up on my external US drive would perish. Data backed up in a remote location would not, but that is increasingly unpopular as it costs money whereas a 1 TB external hard drive is < $ 200.

- **eBackupLocation**
  - On campus, but in a different building

- **Backup Address**
  - Depends. Some stuff is backed up by CCMR, some stuff locally, some stuff rests on Gmail.

- **eBackupTested**
  - No
    - Comments: One of the more interesting developments in college IT is that some campuses have migrated their e-mail to Google and done away with the cost and complexity of maintaining their own e-mail system. CU has not. But there is more than e-mail that can migrate. I personally mirror all the e-mail sent to my CU address into a g Gmail account so that, when the CU system goes down, I have a back up. I also "misuse" my free storage on Gmail to back up some critical data :-)
Please describe each of the major pieces of unique equipment...

How long to rebuild equipment?

Critical research Samples?

No

Critical research samples?

Dependent on other research group?

Dependent on what research group(s)?

Servers

Servers with Critical Data?

No

Additional Comments

My suggestion is to explore to outsource both e-mail and data backup to Google.
4 Rooms

<table>
<thead>
<tr>
<th>Address</th>
<th>Area</th>
<th>Room Type</th>
<th>Select Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>129 Bard Hall</td>
<td>232</td>
<td>Faculty Office (professorial)</td>
<td>BAKER OFFICE</td>
</tr>
<tr>
<td>329 Thurston Hall</td>
<td>138</td>
<td>Faculty Office (professorial)</td>
<td>GIANNELIS GRADS/Baker Office</td>
</tr>
<tr>
<td>156 Bard Hall</td>
<td>942</td>
<td>Non-class Laboratory (resrch)</td>
<td>BAKER LAB</td>
</tr>
<tr>
<td>328 Thurston Hall</td>
<td>140</td>
<td>Alteration Or Conversion Area</td>
<td>KORHONEN/Baker Office</td>
</tr>
</tbody>
</table>

Urgent Recovery

*Under emergency conditions would your research group be able to be productive...*

Yes

*What critical aspects of your operations would need to be recovered within 30 days?*

Unusual Resources Needed

*What resources need to teach course*

I would need access to my course notes.

*Hazards to your research & teaching operations*

Power outage survivable if it goes off and stays off. Intermittent power or brownouts could destroy equipment. Fire and flood would be worse if data as well as equipment would be lost.

Comments: no

Paper Data

*Describe Critical Paper documents:*

important, yes. critical, no

*Is it backed up?*

No

*Where is your paper data stored?*

my office (329 Thurston), students office (SB47 Bard), lab (156 Bard)

*Where are the backups stored?*

*What is the address?*

*Barriers to backing up paper data?*

time and inconvenience
**Electronic Data Backup**

*How much of your electronic data is backed up?*
- Some

*How do you get your data backed up?*
- ☒ Research Group
  - Department IT Staff
  - Research Center IT Staff
  - CIT's EZ Backup
  - Other
    - Research group members are responsible for backing up their own data

*eBackupLocation*
- In same building as system(s) being backed up

*Backup Address*
- 329 Thurston

*eBackupTested*
- No
  - Comments: no

**Equipment**

*Dependent on custom equipment?*
- Yes

*Please describe each of the major pieces of unique equipment...*

<table>
<thead>
<tr>
<th>Equipment Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHV deposition and stress measurement system</td>
<td>156 Bard</td>
</tr>
<tr>
<td>6 circle diffractometer with UHV heating stage</td>
<td>Beam Line G2 at CHESS</td>
</tr>
</tbody>
</table>

Comments: no
### Critical research samples?
- No

### Critical research samples?
- No

### Dependent on other research group?
- Yes

### Dependent on what research group(s)?
- Estroff, van der Meulen

### Comments: no

## Servers

### Servers with Critical Data?
- Yes

<table>
<thead>
<tr>
<th>Servers:</th>
<th>Location</th>
<th>Dept</th>
<th>Rsroh</th>
<th>center</th>
<th>You</th>
<th>Rsroh</th>
<th>Grp</th>
<th>Other</th>
<th>Contact</th>
</tr>
</thead>
</table>

### Comments: no

## Additional Comments
- We are a low-risk group. Our equipment is robust. Most critical data is in at least two places (although we probably don't have adequate off-site backups).
MSE COOP Appendix - Survey Results
Blakely, John M

4 Rooms

<table>
<thead>
<tr>
<th>Address</th>
<th>Area</th>
<th>Room Type</th>
<th>Select Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>312 Bard Hall</td>
<td>201</td>
<td>Faculty Office (professorial)</td>
<td>BLAKELY OFFICE</td>
</tr>
<tr>
<td>B58 Bard Hall</td>
<td>222</td>
<td>Non-class Laboratory (resrch)</td>
<td>BLAKELY LAB</td>
</tr>
<tr>
<td>B60 Bard Hall</td>
<td>1209</td>
<td>Non-class Laboratory (resrch)</td>
<td>BLAKELY LAB</td>
</tr>
<tr>
<td>B59 Bard Hall</td>
<td>87</td>
<td>Research &amp; T. A. Office</td>
<td>BLAKELY GRAD OFFICE</td>
</tr>
</tbody>
</table>

Urgent Recovery

Under emergency conditions would your research group be able to be productive...

No

What critical aspects of your operations would need to be recovered within 30 days?

<table>
<thead>
<tr>
<th>Description</th>
<th>Days</th>
<th>Contact</th>
<th>Alternate Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Computer</td>
<td></td>
<td></td>
<td>Home</td>
<td></td>
</tr>
</tbody>
</table>

Unusual Resources Needed

What resources need to teach course

Access to Cornell Blackboard system. Access to Cornell CCMR computing facility

Hazards to your research & teaching operations

Paper Data

Describe Critical Paper documents:

Course Notes Scientific papers in preparation Consulting Information

Is it backed up?

Partial

Where is your paper data stored?

Cornell Office, Bard Hall

Where are the backups stored?

On campus but in different building

What is the address

Barriers to backing up paper data?
Time to scan papers

Which part isn't backed up

Some paper drafts

Electronic Data Backup

How much of your electronic data is backed up?

Some

How do you get your data backed up?

☐ Research Group
☐ Department IT Staff
☐ Research Center IT Staff
☐ CIT's EZ Backup
☐ Other

eBackupLocation

On campus, but in a different building

Backup Address

Thurston Hall

eBackupTested

No

Equipment

Dependent on custom equipment?

No

Please describe each of the major pieces of unique equipment...

How long to rebuild equipment?

Critical research Samples?

Yes

Critical research samples?

Dependent on other research group?
Blakely, John M

Servers

*Servers with Critical Data?*

- No

*Dependent on what research group(s)?*

- No
**Urgent Recovery**

*Under emergency conditions would your research group be able to be productive...*

No

*What critical aspects of your operations would need to be recovered within 30 days?*

<table>
<thead>
<tr>
<th>Description</th>
<th>Days</th>
<th>Contact</th>
<th>Alternate Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fume hoods</td>
<td>7</td>
<td>Jason Dorvee (<a href="mailto:jrd44@cornell.edu">jrd44@cornell.edu</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electron microscopes (TEM/SEM)</td>
<td>7</td>
<td>Jason Dorvee (<a href="mailto:jrd44@cornell.edu">jrd44@cornell.edu</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X-ray diffraction (WAXS/GADDS)</td>
<td>7</td>
<td>Jason Dorvee (<a href="mailto:jrd44@cornell.edu">jrd44@cornell.edu</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incubator (cell culture)</td>
<td>7</td>
<td>Jason Dorvee (<a href="mailto:jrd44@cornell.edu">jrd44@cornell.edu</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical microscopes</td>
<td></td>
<td>Jason Dorvee (<a href="mailto:jrd44@cornell.edu">jrd44@cornell.edu</a>)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Unusual Resources Needed**

*What resources need to teach course*

I could teach my course (in an altered version) for 30 days. HW assignments, etc. may be reduced, but I could still lecture.

*Hazards to your research & teaching operations*

A power outage for more than 6 hours would destroy a freezer and refrigerator full of samples and supplies. A fire would destroy everything. Water damage would ruin chemicals and lab notebooks.

**Paper Data**

*Describe Critical Paper documents:*

Lab notebooks
Recent assignments not yet entered into electronic grade sheet

*Is it backed up?*

No

*Where is your paper data stored?*
Dependent on custom equipment?
No

Please describe each of the major pieces of unique equipment...

How long to rebuild equipment?

Electronic Data Backup

How much of your electronic data is backed up?
Some

How do you get your data backed up?
- Research Group
- Department IT Staff
- Research Center IT Staff
- CIT’s EZ Backup
- Other

eBackupLocation
In same building as system(s) being backed up

Backup Address
419 Thurston

eBackupTested
No

Equipment

Dependent on custom equipment?
No

Please describe each of the major pieces of unique equipment...

How long to rebuild equipment?
Critical research Samples?

- No

Critical research samples?

- Dependent on other research group?
  - Yes

- Dependent on what research group(s)?
  - NBTC, CCMR

Servers

Servers with Critical Data?

- No
### 14 Rooms

<table>
<thead>
<tr>
<th>Address</th>
<th>Area</th>
<th>Room Type</th>
<th>Select Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>326 Bard Hall</td>
<td>201</td>
<td>Faculty Office (professorial)</td>
<td>GIANNELIS OFFICE</td>
</tr>
<tr>
<td>329 Thurston Hall</td>
<td>138</td>
<td>Faculty Office (professorial)</td>
<td>GIANNELIS GRADS/Baker Office</td>
</tr>
<tr>
<td>419 Bard Hall</td>
<td>206</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS LAB</td>
</tr>
<tr>
<td>414 Bard Hall</td>
<td>246</td>
<td>Research &amp; T. A. Office</td>
<td>DEPT OFFICE GIANNELISH GRADS</td>
</tr>
<tr>
<td>416 Bard Hall</td>
<td>170</td>
<td>Research &amp; T. A. Office</td>
<td>DEPT OFFICE GIANNELIS GRADS</td>
</tr>
<tr>
<td>213 Duffield Hall</td>
<td>531</td>
<td>Non-class Laboratory (resrch)</td>
<td>GIANELLIS</td>
</tr>
<tr>
<td>258 Duffield Hall</td>
<td>1949</td>
<td>Research &amp; T. A. Office</td>
<td>Grad Student Office</td>
</tr>
<tr>
<td>333 Thurston Hall</td>
<td>269</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS LAB/Gianellis Lab</td>
</tr>
<tr>
<td>401 Thurston Hall</td>
<td>467</td>
<td>Non-class Laboratory (resrch)</td>
<td>GIANNELIS LAB</td>
</tr>
<tr>
<td>402 Thurston Hall</td>
<td>445</td>
<td>Non-class Laboratory (resrch)</td>
<td>GIANNELIS LAB</td>
</tr>
<tr>
<td>407 Thurston Hall</td>
<td>1344</td>
<td>Non-class Laboratory (resrch)</td>
<td>GIANNELIS LAB/Malliara Lab</td>
</tr>
<tr>
<td>421 Thurston Hall</td>
<td>256</td>
<td>Non-class Laboratory (resrch)</td>
<td>GIANNELIS LAB</td>
</tr>
<tr>
<td>422 Thurston Hall</td>
<td>241</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS/Gianellis LAB</td>
</tr>
<tr>
<td>305 Thurston Hall</td>
<td>444</td>
<td>Research &amp; T. A. Office</td>
<td>DEPT OFFICE GIANNELIS GRADS</td>
</tr>
</tbody>
</table>

### Urgent Recovery

*Under emergency conditions would your research group be able to be productive...*

No

*What critical aspects of your operations would need to be recovered within 30 days?*

<table>
<thead>
<tr>
<th>Description</th>
<th>Days</th>
<th>Contact</th>
<th>Alternate Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>1</td>
<td>Michele Conrad</td>
<td>Another Laboratory at Cornell</td>
<td>Michele Conrad</td>
</tr>
<tr>
<td>Water</td>
<td>5</td>
<td>Michele Conrad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fume Hoods</td>
<td>2</td>
<td>Michele Conrad</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Standard laboratory resources

What resources need to teach course

None

Hazards to your research & teaching operations

power outage could destroy samples and chemicals

Comments: None

Paper Data

Describe Critical Paper documents:

Lab notebooks Data stored in computers

Is it backed up?

No

Where is your paper data stored?

Student Offices

Where are the backups stored

What is the address

Barriers to backing up paper data?

Inconvenience

Which part isn't backed up

Comments: None

Electronic Data Backup

How much of your electronic data is backed up?

Some

How do you get your data backed up?

☒ Research Group
☐ Department IT Staff
☐ Research Center IT Staff
☐ CIT's EZ Backup
No central person

In same building as system(s) being backed up

326 Vard

No

Comments: None

Equipment

Yes

Please describe each of the major pieces of unique equipment...

Injection molder 421 Thurston

Extruder 412 Thurston

6-9 months

Yes

Typically stored in refrigerator in 401 Thurston

No

Comments: None
## Servers

<table>
<thead>
<tr>
<th>Servers with Critical Data?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

## Additional Comments

| None                         |
Electronic Data Backup

How much of your electronic data is backed up?

Paper Data

Describe Critical Paper documents:
lab notebooks - critical only in unlikely event of being asked to prove source of electronic data.

Is it backed up?
No

Where is your paper data stored?
office

Where are the backups stored

What is the address

Barriers to backing up paper data?

it isn't really critical.

Which part isn't backed up

Hazards to your research & teaching operations

Unusual Resources Needed

What resources need to teach course
MSE 4030 is a laboratory course with experiments written around equipment available in one lab. Most other labs with this equipment are facilities, usually charging too much for undergrad access. With some $$, something could be arranged. For my lecture course, grades and most content are backed up off-site. Would need only to buy replacement texts.

Under emergency conditions would your research group be able to be productive...
Yes

What critical aspects of your operations would need to be recovered within 30 days?

Urgent Recovery

Address Area Room Type Select Data

226 Bard Hall 199 Faculty Office (professorial) GRUBB OFFICE
115 Thurston Hall 494 Non-class Laboratory (research) GRUBB LAB

2 Rooms

Grubb, David Thomas MSE COOP Appendix - Survey Results
Grubb, David Thomas
Critical research samples?
Yes

Dependent on custom equipment?
Yes

Please describe each of the major pieces of unique equipment...

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>mini tensile tester</td>
<td>115 thurston</td>
</tr>
<tr>
<td>couette flow device</td>
<td>115 thurston</td>
</tr>
</tbody>
</table>

How long to rebuild equipment?
Don't know

Critical research Samples?
Yes

115 thurston polymer standards, proteins, feathers, spider silk.
**Dependent on other research group?**
- Yes

**Dependent on what research group(s)?**
- CCMR CHESS

---

**Servers**

**Servers with Critical Data?**
- No
How much of your electronic data is backed up?

Yes. The critical data is almost all in digital form. Currently we are not backing the research data up to a different physical location. The course material is backed up to my home computer.

Is it backed up?

No

Where is your paper data stored?

Bard Hall labs and offices

Where are the backups stored?

What is the address

Barriers to backing up paper data?

Staying current, i.e. making regular copies seems time consuming

Which part isn't backed up

Electronic Data Backup

How much of your electronic data is backed up?

Under emergency conditions would your research group be able to be productive...

Yes

What critical aspects of your operations would need to be recovered within 30 days?

Unusual Resources Needed

What resources need to teach course

In an emergency, I could teach my course anywhere on campus with minimal impact. A copy machine, access to power for my laptop would be helpful.

Hazards to your research & teaching operations

Our group is a computational group. Hazards for our work would include anything that would destroy our computers and disks in the lab: Power outage, fire, water damage, smoke, extreme heat and cold.

Describe Critical Paper documents:

Yes. The critical data is almost all in digital form. Currently we are not backing the research data up to a different physical location. The course material is backed up to my home computer.

Paper Data

1 Rooms

<table>
<thead>
<tr>
<th>Address</th>
<th>Area</th>
<th>Room Type</th>
<th>Select Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>238 Thurston Hall</td>
<td>119</td>
<td>Faculty Office (professorial)</td>
<td>HENNIG FACULTY OFFICE</td>
</tr>
</tbody>
</table>

Hennig, Richard G.
How do you get your data backed up?

- Research Group
- Department IT Staff
- Research Center IT Staff
- CIT's EZ Backup
- Other

All graduate students share the responsibility for the daily and weekly backups that are run automatically.

How do you get your data backed up?

- eBackupLocation
  - In same building as system(s) being backed up
- Backup Address
  - 126 and 129 Bard Hall
- eBackupTested
  - Yes

Equipment

- Dependent on custom equipment?
  - No

Please describe each of the major pieces of unique equipment...

- How long to rebuild equipment?
- Critical research Samples?
  - No
- Critical research samples?
- Dependent on other research group?
  - No
- Dependent on what research group(s)?

Servers
Servers with Critical Data?

No
Describe Critical Paper documents:

Yes.

Is it backed up?

Yes

Where is your paper data stored?

In same building as originals

Where are the backups stored?

What is the address

Urgent Recovery

Under emergency conditions would your research group be able to be productive...

Yes

What critical aspects of your operations would need to be recovered within 30 days?

Unusual Resources Needed

What resources need to teach course

I would need only projection and board to teach.

Hazards to your research & teaching operations

There are no foreseeable hazards except those involving chemical storage in labs.

Paper Data

Describe Critical Paper documents:

Yes.

Is it backed up?

Yes

Where is your paper data stored?

Where are the backups stored

What is the address
Barriers to backing up paper data?
Which part isn't backed up

Electronic Data Backup

How much of your electronic data is backed up?
- Some

How do you get your data backed up?
- Research Group
- Department IT Staff
- Research Center IT Staff
- CIT's EZ Backup
- Other: Each student keeps back up and I as professor keep backup

Backup Address

eBackupLocation
- In same building as system(s) being backed up

Equipment

Dependent on custom equipment?
- No

Please describe each of the major pieces of unique equipment...

How long to rebuild equipment?

Critical research Samples?
- Yes

Critical research samples?
- synthesized particles Bard Hall

Dependent on other research group?
<table>
<thead>
<tr>
<th>Yes</th>
</tr>
</thead>
</table>

*Dependent on what research group(s)?*

| CCMR, CNF, CNF |

**Servers**

*Servers with Critical Data?*

| No |

---
MSE COOP Appendix - Survey Results

Malliaras, George G

15 Rooms

<table>
<thead>
<tr>
<th>Address</th>
<th>Area</th>
<th>Room Type</th>
<th>Select Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>211 Bard Hall</td>
<td>216</td>
<td>Faculty Office (professorial)</td>
<td>VISTG SCIENTISTS/Admin. Office</td>
</tr>
<tr>
<td>327 Bard Hall</td>
<td>176</td>
<td>Faculty Office (professorial)</td>
<td>MALLIARAS OFFICE</td>
</tr>
<tr>
<td>113 Thurston Hall</td>
<td>152</td>
<td>Faculty Office (professorial)</td>
<td>Visiting Scientist</td>
</tr>
<tr>
<td>419 Bard Hall</td>
<td>206</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS LAB</td>
</tr>
<tr>
<td>308 Duffield Hall</td>
<td>822</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS/ENGSTROM</td>
</tr>
<tr>
<td>305 Duffield Hall</td>
<td>1094</td>
<td>Non-class Laboratory Service</td>
<td>LAB SERVICE CORRIDOR</td>
</tr>
<tr>
<td>352 Duffield Hall</td>
<td>1391</td>
<td>Research &amp; T. A. Office</td>
<td>Grad Office Space</td>
</tr>
<tr>
<td>333 Thurston Hall</td>
<td>269</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS LAB/Gianellis Lab</td>
</tr>
<tr>
<td>407 Thurston Hall</td>
<td>1344</td>
<td>Non-class Laboratory (resrch)</td>
<td>GIANNELIS LAB/Malliaras Lab</td>
</tr>
<tr>
<td>415 Thurston Hall</td>
<td>247</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS LAB</td>
</tr>
<tr>
<td>422 Thurston Hall</td>
<td>241</td>
<td>Non-class Laboratory (resrch)</td>
<td>MALLIARAS/Gianellis LAB</td>
</tr>
<tr>
<td>407A Thurston Hall</td>
<td>250</td>
<td>Non-class Laboratory Service</td>
<td>RUOFF/Mallliaras LAB</td>
</tr>
<tr>
<td>331 Thurston Hall</td>
<td>138</td>
<td>Research &amp; T. A. Office</td>
<td>DEPT OFFICE MALLIARAS GRADS</td>
</tr>
<tr>
<td>332 Thurston Hall</td>
<td>140</td>
<td>Research &amp; T. A. Office</td>
<td>DEPT OFFICE MALLIARAS GRADS</td>
</tr>
</tbody>
</table>

Urgent Recovery

Under emergency conditions would your research group be able to be productive...

No

What critical aspects of your operations would need to be recovered within 30 days?

<table>
<thead>
<tr>
<th>Description</th>
<th>Days</th>
<th>Contact</th>
<th>Alternate Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>sample preparation</td>
<td>10</td>
<td>Hon Hang Fong</td>
<td>University of Rochester</td>
<td>Lewis Rothberg</td>
</tr>
<tr>
<td>electrical measurements</td>
<td>5</td>
<td>Hon Hang Fong</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unusual Resources Needed

Malliaras, George G
**What resources need to teach course**
- projector

**Hazards to your research & teaching operations**
- power outage - glove box shuts down
- fire, obviously

**Paper Data**

*Describe Critical Paper documents:*
- lab notebooks of group members

*Is it backed up?*
- Partial

*Where is your paper data stored?*
- student offices in Bard Hall

*Where are the backups stored?*
- Off campus

*What is the address*
- published data

*Barriers to backing up paper data?*
- students maintain one lab book each - they do not take time to copy

*Which part isn't backed up*
- most of unpublished data

**Electronic Data Backup**

*How much of your electronic data is backed up?*
- Some

*How do you get your data backed up?*
- [x] Research Group
- [ ] Department IT Staff
- [ ] Research Center IT Staff
- [ ] CIT’s EZ Backup
MSE COOP Appendix - Survey Results
Malliaras, George G

- [ ] Other

**eBackupLocation**
- In same building as system(s) being backed up

**Backup Address**
- [ ]

**eBackupTested**
- [ ]

### Equipment

- **Dependent on custom equipment?**
  - [ ] Yes

**Please describe each of the major pieces of unique equipment...**

- glove boxes
- Bard Hall

- [ ]

**How long to rebuild equipment?**
- 6 months

**Critical research Samples?**
- [ ] No

**Critical research samples?**

- [ ]

**Dependent on other research group?**
- [ ] Yes

**Dependent on what research group(s)?**
- CNF, CCMR, CHESS

### Servers

- **Servers with Critical Data?**
  - [ ] No
MSE Administration

1 Rooms

<table>
<thead>
<tr>
<th>Address</th>
<th>Area</th>
<th>Room Type</th>
<th>Select Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>213 Bard Hall</td>
<td>156</td>
<td>Staff Office (administrative)</td>
<td>THALHEIMER OFFICE</td>
</tr>
</tbody>
</table>

Urgent Recovery

What critical aspects of your operations would need to be recovered within 30 days?

Unusual Resources Needed
What resources need to teach course
Hazards to your research & teaching operations

Paper Data

Describe Critical Paper documents:

Is it backed up?
Where is your paper data stored?
Where are the backups stored
What is the address
Barriers to backing up paper data?
Which part isn't backed up

Electronic Data Backup

How much of your electronic data is backed up?

How do you get your data backed up?

- Research Group
- Department IT Staff
- Research Center IT Staff
- CIT's EZ Backup
- Other

eBackupLocation
Equipment

Dependent on custom equipment?

Please describe each of the major pieces of unique equipment...

How long to rebuild equipment?

Critical research Samples?

Critical research samples?

Dependent on other research group?

Dependent on what research group(s)?

Servers

Servers with Critical Data?
Since I have a synthesis lab, I need working fume hoods with power and water. Often class demos are in my office or in Bard Hall.

Unusual Resources Needed

Since I have a synthesis lab, I need working fume hoods with power and water.

What resources need to teach course

I would need access to laptop and desktop computer where my notes are as well as reference books. Often class demos are in my office or in Bard Hall.

Hazards to your research & teaching operations
In terms of real trouble, nothing would happen if labs became unavailable. However, all work would stop, grants would be lost, etc.

### Paper Data

*Describe Critical Paper documents:*

```
All my lecture notes are on paper.
```

*Is it backed up?*

```
No
```

*Where is your paper data stored?*

```
it is in my Bard office.
```

*Where are the backups stored*

*What is the address*

*Barriers to backing up paper data?*

```
storage space and time to make copies and sort them.
```

*Which part isn’t backed up*

### Electronic Data Backup

*How much of your electronic data is backed up?*

```
None
```

*How do you get your data backed up?*

- [ ] Research Group
- [ ] Department IT Staff
- [ ] Research Center IT Staff
- [ ] CIT's EZ Backup
- [ ] Other

*eBackupLocation*

*Backup Address*

*eBackupTested*

```
Comments: time and help are needed to do the backup.
```

### Equipment
### Dependent on custom equipment?
- No

### Please describe each of the major pieces of unique equipment...

### How long to rebuild equipment?

### Critical research Samples?
- Yes

### Critical research samples?
- These are located in Bard Hall, Thurson Hall and Duffield Hall.

### Dependent on other research group?
- No

### Dependent on what research group(s)?

---

**Servers**

### Servers with Critical Data?
- No

---

**Additional Comments**
- We do keep some samples in a freezer in Bard Hall, however these samples are unlikely to be damaged if power goes out for extended periods of time.
Urgent Recovery

Under emergency conditions would your research group be able to be productive...
No

What critical aspects of your operations would need to be recovered within 30 days?

<table>
<thead>
<tr>
<th>Description</th>
<th>Days</th>
<th>Contact</th>
<th>Alternate Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>wet lab synthesis</td>
<td>30</td>
<td></td>
<td>duffield hall</td>
<td></td>
</tr>
</tbody>
</table>

Unusual Resources Needed

water, air, nitrogen

What resources need to teach course

Lecture notes (electronic), projector

Hazards to your research & teaching operations

glove box contains air-sensitive materials. samples and precursors would be destroyed if exposed to air from any of the major reasons: power failure, water damage leading to power failure, etc.

Paper Data

Describe Critical Paper documents:
office computer and lab computer has valuable data on it.

Is it backed up?
Partial

Where is your paper data stored?
office or lab

Where are the backups stored
In same building as originals

What is the address
Bard Hall

Barriers to backing up paper data?
need a scanner, high volume scanner

Which part isn't backed up
### Electronic Data Backup

**How much of your electronic data is backed up?**
- Some

**How do you get your data backed up?**
- [ ] Research Group
- [ ] Department IT Staff
- [ ] Research Center IT Staff
- [ ] CIT's EZ Backup
- [ ] Other

**eBackupLocation**
- In same building as system(s) being backed up

**Backup Address**
- Bard Hall (office)

**eBackupTested**
- [ ]

**Comments:** It would be useful if we had a centralized storage facility run over the ethernet lines that we could easily (and automatically) store terabites of our data for a cheap cost. It seems reasonable and not to expensive given the current prices.

### Equipment

**Dependent on custom equipment?**
- No

**Please describe each of the major pieces of unique equipment...**

**Critical research Samples?**
- Yes

**Critical research samples?**
- nanoparticles, structured materials
Dependent on other research group?

No

Dependent on what research group(s)?

Servers

Servers with Critical Data?

No
Urgent Recovery

*Under emergency conditions would your research group be able to be productive...*

Yes

*What critical aspects of your operations would need to be recovered within 30 days?*

*Unusual Resources Needed*

*What resources need to teach course*

For lecture courses, none. For the lab course based on the teaching facility in Duffield, essentially impossible to do in the event of lab loss. Facilities for nanofabrication are not available elsewhere on campus.

*Hazards to your research & teaching operations*

- smoke and water (firefighting) damage
- Can survive extended power / cooling water failures

Paper Data

*Describe Critical Paper documents:*

- Computers. Notebooks are irrecoverable but impossible to effectively backup.

*Is it backed up?*

No

*Where is your paper data stored?*

Offices

*Where are the backups stored?*

*What is the address*

*Barriers to backing up paper data?*

- Scanning bound notebooks

*Which part isn't backed up*
**Electronic Data Backup**

*How much of your electronic data is backed up?*

- All

*How do you get your data backed up?*

- Research Group
- Department IT Staff
- Research Center IT Staff
- CIT’s EZ Backup
- Other (Automated system does daily backups)

*eBackupLocation*

- In same building as system(s) being backed up

*Backup Address*

- Thurston 408B

*eBackupTested*

- Yes

**Equipment**

*Dependent on custom equipment?*

- Yes

*Please describe each of the major pieces of unique equipment...*

- Laser systems 408B Thurston

*How long to rebuild equipment?*

- 4 months

*Critical research Samples?*

- Yes

*Critical research samples?*

- Semiconductor wafers in various stages of processing. Some unique obtained from industry.
<table>
<thead>
<tr>
<th><strong>MSE COOP Appendix - Survey Results</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Thompson, Michael Olgar</td>
</tr>
</tbody>
</table>

**Dependent on other research group?**
- Yes

**Dependent on what research group(s)?**
- CNF

**Comments:** Most equipment custom built and expertise to replace has graduated. Probably not reproduce same capabilities.

### Servers

**Servers with Critical Data?**
- No
2 Rooms

<table>
<thead>
<tr>
<th>Address</th>
<th>Area</th>
<th>Room Type</th>
<th>Select Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>126 Bard Hall</td>
<td>132</td>
<td>Faculty Office (professorial)</td>
<td>UMBACH OFFICE</td>
</tr>
<tr>
<td>B60 Bard Hall</td>
<td>1209</td>
<td>Non-class Laboratory (resrch)</td>
<td>BLAKELY LAB</td>
</tr>
</tbody>
</table>

Urgent Recovery

Under emergency conditions would your research group be able to be productive...

No

What critical aspects of your operations would need to be recovered within 30 days?

<table>
<thead>
<tr>
<th>Description</th>
<th>Days</th>
<th>Contact</th>
<th>Alternate Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>power for fume hoods for chemical processing</td>
<td>5</td>
<td></td>
<td>NBTC</td>
<td></td>
</tr>
<tr>
<td>power for computers</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet access</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>power for vacuum systems</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unusual Resources Needed

What resources need to teach course

Students would need to be able to access myself and teaching assistants for in person office hours.

Hazards to your research & teaching operations

Fire could damage samples and data

Water could damage data

Paper Data

Describe Critical Paper documents:

Student lab notebooks and data, graded work

Is it backed up?

Partial

Where is your paper data stored?
Electronic Data Backup

How much of your electronic data is backed up?

- Some

How do you get your data backed up?

- [x] Research Group
- [ ] Department IT Staff
- [ ] Research Center IT Staff
- [ ] CIT’s EZ Backup
- [ ] Other

TA’s (currently Dong Hao and Lou Estevez) for grades, graduate students (Totka Ouzounova and David Bogdan) for data.

Where are the backups stored

- Office

What is the address

- Thurston Hall

Backup Address

- (Home)

Backup Tested

- No

Equipment

Dependent on custom equipment?

- Yes

Please describe each of the major pieces of unique equipment...
### Critical research Samples?
- Yes

#### Critical research samples?
- samples are located in B60 Bard Hall

#### Dependent on other research group?
- Yes

#### Dependent on what research group(s)?
- CCMR, NBTC

### Servers

#### Servers with Critical Data?
- Yes

<table>
<thead>
<tr>
<th>Location</th>
<th>Dept</th>
<th>Rsrch center</th>
<th>You</th>
<th>Rsrch Grp</th>
<th>Other</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CCMR IT Staff</td>
</tr>
<tr>
<td>CCMR</td>
<td>Thurston, Clark</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>CCMR IT Staff</td>
</tr>
<tr>
<td>CCMR</td>
<td>Thurston, Clark</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>CCMR IT Staff</td>
</tr>
</tbody>
</table>
Unusual Resources Needed

My equipment is completely customized, unique, and expensive. There are no equivalents available for general access on campus, or across the nation (or globe). Some of the experiments I perform might be accomplished in collaboration with other groups around the world using their equipment, if they could be persuaded to work on my projects.

What resources need to teach course

My courses are taught using a combination of blackboard and powerpoint lectures. I need only an LCD projector and my laptop. The powerpoint files are backed up in off-campus locations.
**Electronic Data Backup**

*How much of your electronic data is backed up?*
- Some

*How do you get your data backed up?*
- [x] Research Group
- [ ] Department IT Staff

---

**Hazards to your research & teaching operations**

Water damage would have a catastrophic effect on my electronic equipment. Anticipated power outages are not a problem, but unanticipated power outages may cause irreparable damage to expensive equipment in some cases. Normally this won't happen, and the worst outcome is that a particular experiment is spoiled, and a day's work lost. Extreme heat (e.g., fire) will damage electronic equipment irreparably. Extreme cold (e.g., the coldest day in Ithaca) is not a problem.

Comments: If my research facilities are shut down then my research will almost completely shut down. To some degree analysis of previous experiments, and writing of papers can continue, but these usually demand further experiments to progress, so even that activity will dwindle. If other on-campus facilities not located in my labs should be shut down (e.g., CCMR research facilities) this would have a significant but not immediately devastating impact.

**Paper Data**

*Describe Critical Paper documents:*

Yes, of course. Digital: lab data stored on data-acquisition computers, written work stored on student's and my computers (desktop and notebook), course notes, course information, grade spreadsheet, etc., on my laptop and notebook. Paper: student course work, plots and analyses of lab data, manuals, files, ...

*Is it backed up?*

Partial

*Where is your paper data stored?*

Mostly in student offices.

*Where are the backups stored*

In same building as originals

*What is the address*

Bard 227

*Barriers to backing up paper data?*

Added work involved in making copies.

*Which part isn't backed up*

Student manuscripts. Most other paper-based data that is not backed up is not critical.
students are responsible for backing up their own data and written work. I am responsible for my own data and paperwork.

Comments: It would be helpful if Cornell would provide a flexible and free backup service, including software. I am concerned that my students are not backing up their computers on a regular basis.

Equipment

Dependent on custom equipment?
Yes

Please describe each of the major pieces of unique equipment...

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Bard, Duffield</th>
</tr>
</thead>
<tbody>
<tr>
<td>synthesis equipment</td>
<td></td>
</tr>
<tr>
<td>measurement equipment</td>
<td></td>
</tr>
</tbody>
</table>

How long to rebuild equipment?
6 months - 1 year

Critical research Samples?
Yes

Critical research samples?
Bard, Duffield

Dependent on other research group?
Yes
Dependent on what research group(s)?

CCMR facilities, CNF facilities, close collaboration with Abruna and DiSalvo groups on campus

Servers

Servers with Critical Data?

No
Urgent Recovery

Under emergency conditions would your research group be able to be productive...

No

What critical aspects of your operations would need to be recovered within 30 days?

<table>
<thead>
<tr>
<th>Description</th>
<th>Days</th>
<th>Contact</th>
<th>Alternate Location</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glovebox</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schlenk lines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot plates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spin coater</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ovens</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Electronic Data Backup

*How much of your electronic data is backed up?*

Partial

*How do you get your data backed up?*

Lab notebooks, course teaching notes

Hazard to your research & teaching operations

Many chemicals are sensitive to heat and/or water

Samples in freezer would be damaged by electrical outage of 1+ day

Unusual Resources Needed

High vacuum system (Schlenk lines)

What resources need to teach course

Microtome (CCMR)

TEM (CCMR)

What resources need to teach course

Microtome (CCMR)

TEM (CCMR)

Hazards to your research & teaching operations

Many chemicals are sensitive to heat and/or water

Samples in freezer would be damaged by electrical outage of 1+ day

Paper Data

*Describe Critical Paper documents:*

Lab notebooks, course teaching notes

*Is it backed up?*

No

*Where is your paper data stored?*

304 Thurston

*Where are the backups stored?*

*What is the address?*

*Barriers to backing up paper data?*

Time

Which part isn't backed up
Research Group

Department IT Staff

Research Center IT Staff

CIT’s EZ Backup

Other

**eBackupLocation**

Various group member homes

**Backup Address**

**eBackupTested**

No

Comments: Ideally, Cornell would provide a convenient service for data backup and long-term storage.

### Equipment

**Dependent on custom equipment?**

Yes

**Please describe each of the major pieces of unique equipment...**

| Schlenk lines (3) | 403, 404, 406 Thurston |

**How long to rebuild equipment?**

2 weeks

**Critical research Samples?**

Yes

**Critical research samples?**

Stored in 403, 404, 406 Thurston

**Dependent on other research group?**

Yes

**Dependent on what research group(s)?**

CCMR facilities (TEM, microtome, SEM, TGA, DSC, GPC)
## Servers

<table>
<thead>
<tr>
<th>Servers with Critical Data?</th>
<th>Servers:</th>
<th>Location</th>
<th>Dept</th>
<th>Rsrh</th>
<th>You</th>
<th>Rsrh</th>
<th>Grp</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Desktop computer</td>
<td>304 Thurston</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td><a href="mailto:ha64@cornell.edu">ha64@cornell.edu</a></td>
</tr>
</tbody>
</table>