How Do You Study Abnormality?
Psychology 3303
Professor June Gruber
“You cannot get through a single day without having an impact on the world around you. What you do makes a difference, and you have to decide what kind of difference you want to make.”

-Jane Goodall
Roadmap

Logistics

Paradigms

Methods

Take-Away Questions
Logistics

Reading Responses  (Begin this week, Example on Website)
Respond to all required readings, 1 prompt per reading
Due Thursday BEFORE class

Office Hours
Email note 24 hrs in advance if planning to attend
• Abnormality is the study of unusual patterns of behavior, emotion, thought, and physiological responding.

• Between 20 – 30% of people in the USA have a diagnosable mental illness, and up to 50% will meet criteria in their lifetime.

• Harmful dysfunction is a prevailing model of abnormality that involves disruptions in the mechanisms of the human mind that give rise to substantial impairment in daily functioning.
QUESTIONS?
Roadmap

Logistics

Paradigms

Methods

Take-Away Questions
Biological

Cognitive
Behavioral

Psychodynamic

Humanistic

genetic
neuroscience
1. BIOLOGICAL: Neuroscience
This image is of 28-year-old identical twins, one with schizophrenia and the other well. It therefore clearly illustrates two points: (1) schizophrenia is a brain disease with measurable structural and functional abnormalities in the brain; and (2) it is not a purely genetic disease, and other biological factors play a role in its etiology.

Photo courtesy of Drs. E. Fuller Torrey and Daniel Weinberger.

MRI scans of 28-year-old male identical twins showing the enlarged brain ventricles in the twin with schizophrenia (right) compared to his well brother (left).
Functional neuroimaging studies look at brain activity during certain tasks and how it differs between people with and without a disorder.
1. BIOLOGICAL: Neuroscience

Neurotransmitter

The brain requires a number of chemicals to operate properly.

Neurotransmitters are biochemical messengers.

Many disorders may involve abnormal levels of neurotransmitters, or abnormal functioning of receptors for neurotransmitters.
1. BIOLOGICAL: Neuroscience

Serotonin
mood, impulse control

Norepinephrine
mood, response to drugs

Dopamine
pleasure/pain; implicated in schizophrenia

GABA
stress response, anxiety
1. BIOLOGICAL: Genetic

Identify people who clearly have the disorder in question (proband).

Researchers are most interested in first-degree relatives.
1. BIOLOGICAL: Genetic

TWIN STUDIES

Research sets of twins in which at least one has a disorder

Determine rate that the second twin also has the disorder - concordance rate

Higher concordance rates in MZ twins than DZ twins suggests role of genes
1. BIOLOGICAL: Genetic

Genetics in Twins with Schizophrenia

Risk of Schizophrenia for Other Twin if First Twin has Schizophrenia

- MZ (Identical) twin
- DZ (Fraternal) twin
1. BIOLOGICAL: Genetic

ADOPTION STUDIES

Identify people adopted at birth who have the disorder, and a comparison group of adoptees without the disorder.

Compare rates of disorder in the biological vs. adoptive relatives of both groups.
1. BIOLOGICAL: Genetic

MOLECULAR LEVEL STUDIES

Examine correlation between the presence of a disorder in individuals and the presence of specific genetic characteristics.
1. BIOLOGICAL: Genetic

**EPIGENETICS**

Study of heritable changes in the expression of genes without changing the gene sequence.

DNA can be chemically modified by different environmental conditions, resulting in genes being turned on or off.
Biological

genetic

neuroscience

Cognitive

Behavioral

Psycho-
dynamic

Humanistic
2. COGNITIVE/BEHAVIORAL

AARON BECK

Cause of mental illness found in maladaptive schemas and interpretations

Set up behavioral experiments to test assumptions
What we **think** affects how we act and feel.

What we **feel** affects what we think and do.

What we **do** affects how we think and feel.
Negative views about the world

"Everybody hates me because I am worthless"

Negative views about oneself

"I am worthless"

Negative views about the future

"I'll never be good at anything because everyone hates me"
**AUTOMATIC THOUGHT RECORD**

When you notice your mood getting worse, ask yourself, “What’s going through my mind right now?” As soon as possible, fill in the table below.

<table>
<thead>
<tr>
<th>Date, Time</th>
<th>Situation</th>
<th>Automatic Thoughts</th>
<th>Emotion</th>
<th>Adaptive Response</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• What led to the unpleasant emotion? • What distressing physical sensations did you have?</td>
<td>• What thought/s or image/s went through your mind? • How much did you believe the thought at the time (0-100%)?</td>
<td>• What emotion/s did you feel at the time? • How intense was the emotion (0-100%)?</td>
<td>• Which thinking styles did you engage in? • Use questions below to respond to the automatic thoughts/s. • How much do you believe each response (0-100%)?</td>
<td>• How much do you now believe your ATs (0-100%)? • What emotion(s) do you now feel? At what intensity?</td>
</tr>
</tbody>
</table>

**Questions to compose an Adaptive Response:** (1) What is the evidence that the automatic thought is true? Not true? (2) Is there an alternative explanation? (3) What’s the worst that could happen? What’s the best that could happen? What’s the most realistic outcome? (4) If a friend were in this situation and had this thought, what would I tell him/her?
3. PSYCHODYNAMIC
“Our right to assume the existence of something mental that is unconscious and to employ that assumption for the purposes of scientific work is disputed in many quarters, To this we can reply that our assumption of the unconscious is necessary and legitimate, and that we possess numerous proofs of its existence.”

Sigmund Freud (1891)
“Until you make the unconscious conscious, it will direct your life and you will call it fate.”

Carl Jung
“In addition to our immediate consciousness, which is of a thoroughly personal nature and which we believe to be the only empirical psyche (even if we tack on the personal unconscious as an appendix), there exists a second psychic system of a collective, universal, and impersonal nature which is identical in all individuals. This collective unconscious does not develop individually but is inherited. It consists of pre-existent forms, the archetypes, which can only become conscious secondarily and which give definite form to certain psychic contents.”

Carl Jung
http://youtu.be/lpo_yoWh64I?t=1m54s
Humanistic

Biological
genetic
neuroscience

Cognitive
Behavioral

Psycho-
dynamic

Psycho-
dynamic
The curious paradox is that when I accept myself just as I am, then I can change.

Carl Rogers
4. HUMANISTIC

- **Self-actualization**: morality, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts
- **Esteem**: self-esteem, confidence, achievement, respect of others, respect by others
- **Love/Belonging**: friendship, family, sexual intimacy
- **Safety**: security of body, of employment, of resources, of morality, of the family, of health, of property
- **Physiological**: breathing, food, water, sex, sleep, homeostasis, excretion
Roadmap

Paradigms

Methods

Take-Away Questions
Where did scientific methods to study abnormal psychology arise from?
“Science is the systematic pursuit of knowledge through observation. The first step of science is to define a theory and related hypotheses. A good theory is precise and could be disproven, and a set of principles must be considered in testing a theory. It is important for researchers to replicate findings from a given study, which requires being precise about the methods used.”
EMPIRICISM

• Philosophy of science that emphasizes evidence, especially as discovered in experiments.

• Fundamental part of the scientific method that all hypotheses and theories must be tested against observations of the natural world rather than testing solely on previous reasoning, intuition, or revelation.
EMPIRICISM

• Utilizes the **scientific method**, which is a body of techniques for investigating phenomena, acquiring new (or correcting) knowledge, and integrating previous knowledge.

• Includes **systematic observation**, measurement, experimentation, and testing and modifying hypotheses.
EMPIRICISM

- Science of Observation
  Observe WHAT people do
  Explain WHY they do it
  Explain HOW they do it

- Measurement
  DEFINE what we want to measure
  HOW we want to detect it
EMPIRICISM

1. Humans are complex

2. Great variability in human reactions re: behavior, emotions, thoughts

3. Humans show different levels of reactivity to contexts
What are 3 common methods to study abnormality?
Case Study

Detailed description of an individual’s psychological problems and context
Case Study

Detailed description of an individual’s psychological problems and context
CASE STUDY

Detailed description of an individual's psychological problems and context

May serve as a source of new ideas about behavior

Freud’s theories based entirely on case studies

May offer tentative support for a theory or may challenge a theory’s assumptions

May inspire new therapeutic techniques

May offer opportunities to study unusual problems

EXAMPLE

Freud’s theories based entirely on case studies

JOSEF BREUER and SIGMUND FREUD
STUDIES ON HYSTERIA
Translated from the German and edited by JAMES STRACHEY
In collaboration with ANNA FREUD
Assisted by ALIX STRACHEY and ALAN TYSO
BASIC BOOKS, INC., PUBLISHERS
56 FOURTH AVENUE, NEW YORK 3, N. Y.
## Case Study Summary

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich and detailed information about a single person</td>
<td>Observers are biased</td>
</tr>
<tr>
<td>Generate hypotheses to test in controlled research</td>
<td>Relies on subjective evidence</td>
</tr>
<tr>
<td>Opportunities to study unusual problems</td>
<td>- Low on internal validity</td>
</tr>
<tr>
<td></td>
<td>Little basis for generalization from N = 1</td>
</tr>
<tr>
<td></td>
<td>- Low on external validity</td>
</tr>
<tr>
<td>Case Study</td>
<td>Correlation</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Detailed description of an individual’s psychological problems and context</td>
<td>The degree to which events or characteristics vary from each other by measuring the strength of a relationship</td>
</tr>
</tbody>
</table>
Correlations may be...

**Positive:** Variables move in the same direction

**Negative:** Variables move in the opposite direction

**Not correlated**
Correlations may be…

**High Magnitude**: Variables which vary closely together, fall close to the line of best fit

**Low Magnitude**: Variables which do not vary as closely together; loosely scattered around the line of best fit
Correlation Coefficient

**Value**

- + or - sig indicates direction

**Number**

- 0.00 = no consistent relationship
- +1.00 = perfect positive relationship
- -1.00 = perfect negative relationship
CORRELATION DOES NOT IMPLY CAUSATION

There's a third variable problem here.
A new study found Colorado has the lowest obesity level of any state.

You know what that means?
No - what?

Forget dieting - we're moving to Colorado!
I used to think correlation implied causation.

Then I took a statistics class. Now I don't.

Sounds like the class helped.

Well, maybe.
## Correlation Summary

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful when variables cannot be manipulated (e.g., diagnosis)</td>
<td>Low internal validity - results describe but do not explain relationship</td>
</tr>
<tr>
<td>High external validity</td>
<td>Third-variable problem - cannot draw cause-effect conclusion</td>
</tr>
<tr>
<td>Utilized to answer questions from epidemiology and behavioral genetics</td>
<td></td>
</tr>
</tbody>
</table>
Case Study

Detailed description of an individual’s psychological problems and context

Correlation

The degree to which events or characteristics vary from each other by measuring the strength of a relationship

Experimental

Research procedures in which a variable is manipulated and the effect on the other variable is observed
EXPERIMENTAL METHOD

Variables

**Independent Variable:** Manipulated variable by experimenter

**Dependent Variable:** Variable whose effect is being observed by experimenter
EXPERIMENTAL METHOD

3 features

1. Control Group
2. Random Assignment
3. Blind and Double Blind Assignment
EXPERIMENTAL METHOD

2 more things!

1. Internal validity
2. External validity
ALTERNATIVE EXPERIMENTAL DESIGNS

1. Quasi-Experimental Design
2. Natural Experiments
3. Analogue Experiments
4. Single-Subject Experiments
5. Treatment Studies
### Alternative Designs

<table>
<thead>
<tr>
<th>Design Type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quasi-Experimental</strong></td>
<td>Do not randomly assign, use existing groups</td>
<td><em>Children with history of abuse</em></td>
</tr>
<tr>
<td><strong>Natural</strong></td>
<td>Nature manipulates IV and observe effects</td>
<td><em>Psychological impact of Boulder flood</em></td>
</tr>
<tr>
<td><strong>Analogue</strong></td>
<td>Manipulate IV freely</td>
<td><em>Induce worry and examine emotions</em></td>
</tr>
<tr>
<td><strong>Single-Subject</strong></td>
<td>N=1, observe before and after IV manipulation</td>
<td><em>Patient case studies</em></td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td>Address whether a given treatment works</td>
<td><em>Effect of CBT on depression symptoms</em></td>
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</table>
CASE STUDY

Positive mood and sleep disturbance in acquired mania following temporal lobe damage

JUNE GRUBER, JULIE N. LEMOINE, ROBERT T. KNIGHT, & ALLISON G. HARVEY

University of California, Berkeley, CA, USA

(Received 6 February 2007; revised 21 August 2007; accepted 22 August 2007)

Abstract
Primary objective: To determine the mood profile and sleep functioning of a patient with left anterior temporal region damage characterized by post-operative symptoms of mania.

Methods and procedures: In a structured clinical assessment, the patient’s mood status, psychiatric diagnosis and sleep functioning—sleep onset latency, total sleep time, wake after sleep onset—were assessed. The sleep-wake cycle and daily mood was measured for 11 consecutive days.

Results: The patient met diagnostic criteria for bipolar disorder (excluding the requirement that the disturbance must not be due to a medical disorder) and delayed sleep-phase syndrome. Across 11 days, the patient exhibited elevated positive, but not negative, mood. Correlational analyses indicated a possible association between mood and sleep disturbance.

Conclusions: This pattern of findings implicates the temporal lobe in positive mood regulation and sleep-related impairments.

Keywords: Mania, positive mood, sleep, temporal lobe, delayed phase
Experimental Summary

Advantages

High internal validity

Replicate studies on other samples

Disadvantages

Low external validity

Results describe but do not explain relationship
## Overall Summary

<table>
<thead>
<tr>
<th></th>
<th>Individual (Idiographic) Information</th>
<th>General (nomothetic) information</th>
<th>Causal information</th>
<th>Statistical analysis possible</th>
<th>Replicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Study</td>
<td>⌂</td>
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</tr>
<tr>
<td>Correlational</td>
<td>⌂</td>
<td>⌂</td>
<td>⌂</td>
<td>⌂</td>
<td>⌂</td>
</tr>
<tr>
<td>Experimental</td>
<td>⌂</td>
<td>⌂</td>
<td>⌂</td>
<td>⌂</td>
<td>⌂</td>
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</tbody>
</table>
CAVEATS TO STUDY ABNORMAL PSYCHOLOGY

CAVEATS

1. Accurately measuring abnormal behavior.

2. Difficulty and ethics of recruiting participants who have mental illness.

3. Multiple causes and correlates of abnormal behavior.
QUESTIONS?
Thank You!

Psychology 3303
Abnormal Psychology
Professor June Gruber