18.405J/6.841J Advanced Complexity Theory	January 1, 2000

How to Use preamble.tex

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This document descibes the features how to use the 18.405 *preamble.tex*. It assumes a basic knowledge of latex (and, in particular, the math environment).

Header

- **Generally, start with** :

```
\documentclass{article}
\usepackage{amsmath,amssymb}
\input{preamble.tex}

\begin{document}
```

This will enable the features described here.

- **lecture** header:

```
\lecture{00}{January 1, 2000}{Dan Spielman}{Joe Scribe}
```

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Lecture 00

Lecturer: Dan Spielman | *Scribe: Joe Scribe*

Theorems

- **theorem** theorem:

```
\begin{theorem}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{theorem}
```

Theorem 1 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **corollary** theorem:

```
\begin{corollary}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{corollary}
```

Corollary 2 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **lemma** theorem:

```
\begin{lemma}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{lemma}
```

Lemma 3 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **observation** theorem:

```
\begin{observation}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{observation}
```

Observation 4 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **proposition** theorem:

```
\begin{proposition}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{proposition}
```

Proposition 5 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **definition** theorem:

```
\begin{definition}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{definition}
```

Definition 6 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **claim** theorem:

```
\begin{claim}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{claim}
```

Claim 7 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **fact** theorem:

```
\begin{fact}
Some stuff. These mostly differ
in the labels that begin each.

Note the line, paragraph breaks.
\end{fact}
```

Fact 8 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

- **assumption** theorem:

  ```
  \begin{assumption}
  Some stuff. These mostly differ
  in the labels that begin each.

  Note the line, paragraph breaks.
  \end{assumption}
  ```

Assumption 9 *Some stuff. These mostly differ in the labels that begin each.*

Note the line, paragraph breaks.

Commands

- **qed** command:

  ```
  \qed
  ```

  ■

- **dis** command:

  ```
  $\dis$
  ```

  d

- **per** command:

  ```
  $\per$
  ```

  per

- **area** command:

  ```
  $\area$
  ```

  area

- **cw** command:

  ```
  $\cw$
  ```

  cw

- **ccw** command:

  ```
  $\ccw$
  ```

  ccw

- **DIST** command:

  ```
  $\DIST$
  ```

  DIST

- **OP** command:

  ```
  $\OP$
  ```

  OP

- **OPprime** command:

  ```
  $\OPprime$
  ```

  OP'

- **ihat** command:

  ```
  $\ihat$
  ```

  $\hat{\imath}$

- **jhat** command:

  ```
  $\jhat$
  ```

  $\hat{\jmath}$

- **bigO** command:

  ```
  \bigO
  $\bigO$
  ```

  O
  O

- **half** command:

  ```
  $\half$
  ```

  $\frac{1}{2}$

- **abs** command:

  ```
  \abs{foo}
  $\abs{foo}$
  ```

  $|foo|$
  $|foo|$

- **Pr** command:

  ```
  \Pr{foo}
  $\Pr{foo}$
  ```

  $\Pr[foo]$

- **Exp** command:

  ```
  \Exp{foo}
  $\Exp{foo}$
  ```

  $\mathrm{Exp}[foo]$
  $\mathrm{Exp}[foo]$

- **set** command:

  ```
  \set{foo}
  $\set{foo}$
  ```

  $\{foo\}$
  $\{foo\}$

Pseudocode Commands

- **FOR** command:

  ```
  \FOR
  $\FOR$
  ```

for
for

- **TO** command:

  ```
  \TO
  $\TO$
  ```

to
to

- **DO** command:

  ```
  \DO
  $\DO$
  ```

do
do

- **WHILE** command:

  ```
  \WHILE
  $\WHILE$
  ```

while
while

- **AND** command:

  ```
  \AND
  $\AND$
  ```

and
and

- **IF** command:

  ```
  \IF
  $\IF$
  ```

if
if

- **THEN** command:

  ```
  \THEN
  $\THEN$
  ```

then
then

- **ELSE** command:

  ```
  \ELSE
  $\ELSE$
  ```

else
else

Layout Commands

- **mathify** command:

Enforces math mode (temporarily, if necessary).

```
\mathify{foo \cdot x^2}

$\mathify{foo \cdot x^2}$
```

$foo \cdot x^2$
$foo \cdot x^2$

Environments

- **proof** environment:

```
\begin{proof}
This is text to demonstrate the
flow and formatting. Using these
makes the latex more readable.

Note that most environments do
\emph{not} set the math mode.
\end{proof}
```

Proof This is text to demonstrate the flow and formatting. Using these makes the latex more readable.

Note that most environments do *not* set the math mode. ■

- **proof-sketch** environment:

```
\begin{proof-sketch}
This is text to demonstrate the
flow and formatting. Using these
makes the latex more readable.

Note that most environments do
\emph{not} set the math mode.
\end{proof-sketch}
```

Sketch of Proof This is text to demonstrate the flow and formatting. Using these makes the latex more readable.

Note that most environments do *not* set the math mode. ■

- **proof-idea** environment:

```
\begin{proof-idea}
This is text to demonstrate the
flow and formatting. Using these
makes the latex more readable.

Note that most environments do
\emph{not} set the math mode.
\end{proof-idea}
```

Proof Idea This is text to demonstrate the flow and formatting. Using these makes the latex more readable.

Note that most environments do *not* set the math mode. ■

- **proof-of-lemma** environment:

```
\begin{proof-of-lemma}{foo}
This is text to demonstrate the
flow and formatting. Using these
makes the latex more readable.

Note that most environments do
\emph{not} set the math mode.
\end{proof-of-lemma}
```

Proof of Lemma foo This is text to demonstrate the flow and formatting. Using these makes the latex more readable.

Note that most environments do *not* set the math mode. ■

- **proof-attempt** environment:

```
\begin{proof-attempt}
This is text to demonstrate the
flow and formatting. Using these
makes the latex more readable.

Note that most environments do
\emph{not} set the math mode.
\end{proof-attempt}
```

Proof Attempt This is text to demonstrate the flow and formatting. Using these makes the latex more readable.

Note that most environments do *not* set the math mode. ■

- **proofof** environment:

```
\begin{proofof}{foo}
This is text to demonstrate the
flow and formatting. Using these
makes the latex more readable.

Note that most environments do
\emph{not} set the math mode.
\end{proofof}
```

Proof of foo: This is text to demonstrate the flow and formatting. Using these makes the latex more readable.

Note that most environments do *not* set the math mode. ■

- **remark** environment:

```
\begin{remark}
This is text to demonstrate the
flow and formatting. Using these
makes the latex more readable.

Note that most environments do
\emph{not} set the math mode.
\end{remark}
```

Remark This is text to demonstrate the flow and formatting. Using these makes the latex more readable.

Note that most environments do *not* set the math mode.