Creating Canvas Pages from LaTeX Documents

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Executive summary

It is possible to make accessible Canvas pages from LaTeX source code. You will need to install Python version 3 or later and Pandoc on your computer. You will then install a Python package from an online repository. There is a one-time, two-step action you need to take within Canvas. After initial setup, to quickly and easily make each Canvas page, within Python you will execute approximately 8 lines of code, all of which can be cut and pasted, with minimal editing, from this document or from the online documentation.

For people new to Python, the initial setup should take approximately 15-30 minutes. Creating and publishing a new page from existing LaTeX content should take 2 minutes or less for each subsequent use. People already familiar with Python can use the [online documentation (https://grading.readthedocs.io/en/latest/index.html)](https://grading.readthedocs.io/en/latest/index.html) to get started.

Introduction

For instructors with existing PDF documents created via LaTeX or those who prefer to compose course material in LaTeX going forward, a Cornell faculty member has made available his Python scripts to create Canvas pages from LaTeX source code (among other things): cornellGrading.

PDF documents generated directly from pdflatex, for example, are not generally compliant with accessibility guidelines. Canvas pages can be. The cornellGrading package has the following accessibility-related outcomes:

* any equations or math mode content is transformed into Canvas-native equations. They are fully editable within Canvas and, more importantly, are dealt with by screen readers the same as any Canvas-created equations;
* figures are given alt-text (which is the caption text);
* text styles, headers, etc., are rendered in a screen reader-compatible way;
* as a Canvas page, it will automatically size appropriately for different screen sizes (unlike a PDF).

This document has very limited instructions for the specific task of getting set up initially and then generating accessible Canvas pages from LaTeX documents. The online [documentation for the cornellGrading package](https://grading.readthedocs.io/en/latest/index.html) has complete instructions. People already familiar with Python should use the [online documentation (https://grading.readthedocs.io/en/latest/index.html)](https://grading.readthedocs.io/en/latest/index.html) to get started. People not familiar with Python can continue with this guide, below.

Software setup

There are 4 setup actions you need to do one time before you can use cornellGrading.

* Make sure you have Python version 3 or higher on your computer. Go to <https://www.python.org/downloads/> to install the latest version.
* Go to <https://pandoc.org/installing.html> to install Pandoc, following the operating-specific instructions included on the Pandoc site. Pandoc is a universal document converter and the Python scripts use it to convert from PDF to HTML.
* You need to generate and install an API token from Canvas. This is what allows your computer to interact with your Canvas sites algorithmically.
  1. Log in to Canvas and navigate to Account > Settings and scroll down to Approved Integrations.
  2. Click on New Access Token. This will bring up a popup window with two prompts. Under "Purpose" you can enter an arbitrary label such as "accessibility" or "cornellGrading" or "Python integration". Leave the "Expires" date blank.
  3. Click on the Generate Token button. This token will not be shown again, so you must copy it and save it somewhere. For Mac users, try pasting it into a Stickies note. For Windows users, paste it into a Notepad document. You'll be asked to provide this token soon in Python.
* To get the cornellGrading package on your computer, you can access it from PyPI, which is a Python package repository. Open a Terminal on your computer (Terminal on Macs or PowerShell on Windows machines) and at the command line enter the following code:

pip install --user cornellGrading[latex2html]

Creating a Canvas Page

This document has very limited instructions for the specific task of generating Canvas pages from LaTeX documents. The [documentation for the cornellGrading package](https://grading.readthedocs.io/en/latest/index.html) has complete instructions for more advanced users.

To ensure you have the most recent version of the cornellGrading repository you may want to, from time to time, update your local copy. At the command line in a terminal, use the following command:

pip install --user --upgrade cornellGrading[latex2html]

Enter Python via the terminal command line:

python

The rest of the commands below should be entered within the Python environment. You can copy and paste the code snippets below into your Python command line.

**from** **cornellGrading** **import** cornellGrading

*#connect to canvas*

*#if this is your first time doing this, you'll be prompted*

*#to enter your API token*

c = cornellGrading()

This is where, the first time you run this code, you be prompted to enter your saved API token from the Software Setup instructions, above. Once you've done this the first time, the token will be saved in your computer and you will not be prompted for it again.

For Mac users: you can use the keyboard shortcuts to copy and paste the token into the prompt. It will not appear on screen but will be saved into your Keychain.

For Windows machine users: on **Windows machines ctrl-v will not work.** You can either type the token in directly at the prompt or use the optional canvas-token-file argument: c = cornellGrading(canvas\_token\_file=r'path\_to\_token\_file') where path\_to\_token\_file is the full path to a plain text file where you saved the token.

*#get your coursenumber (the part in parentheses):*

**for** cn **in** c.canvas.get\_courses(): **print**(cn)

The lines above will print out a list of all of your Canvas courses, which will each be followed by a number in parentheses. Find the number of the course you want to add content to and enter it in place of the ... in the following line of code.

coursenum = ... *#change to your actual number from list printed above*

c.getCourse(coursenum)

*#sanity check*

**print**(c.coursename) *#should be the course name you set in Canvas*

**print**(c.names) *#should be all your students*

Having completed those preliminary steps, you're now ready to important content from LaTeX source. Once you've figured out your course number, you may want to save your custom code snippet, with the proper course number, somewhere that you can reuse with a single cut and paste in the future. The end of this document has such a code. Edit the bolded items there for your own use.

*#create a page from LaTeX source*

res = c.latex2page(fname, title)

where fname is the complete path to a .tex file and title is what you want for the title of the Canvas page. Both fname and title must be entered as strings in single quotes, e.g. 'C:\Users\mydir\mydoc.tex' and 'My Canvas Page'. Note to Windows users: because full path names typically include backslash on Windows machines, you need to preface the fname string with the character lowercase r, as in: res = c.latex2page(r'C:\Users\mydir\mydoc.tex', 'My Canvas Page')

Two important options: if you want the Canvas page to start with a link to the full PDF, then use:

*#create a page from a PDF from LaTeX source*

res = c.latex2page(fname, title, insertPDF=True)

where fname is the complete path to the already compiled PDF file. Including that PDF link is recommended because the Pandoc html translation is not 100% accurate and reliable. The archival version will likely be your PDF, and you can make that available to students this way.

If you want the page to be automatically published, use:

*#create a page from a PDF from LaTeX source and have it published automatically*

res = c.latex2page(fname, title, insertPDF=True, published=True)

Single code block

The code below can be edited for your use and copied and pasted as a single block for adding content to your Canvas site.

from cornellGrading import cornellGrading

*#connect to canvas*

c = cornellGrading()

*#get your coursenumber (the part in parentheses):*

for cn in c.canvas.get\_courses(): print(cn)

coursenum = **999** *#change to your actual number from list printed above*

c.getCourse(coursenum)

*#sanity check*

print(c.coursename) *#should be the course name you set in Canvas*

*#create a page from a PDF from LaTeX source on Mac*

res = c.latex2page(**'Users/myname/Courses/MyDoc.pdf'**, **'My Canvas Page'**, insertPDF=True)

*#create a page from a PDF from LaTeX source on Windows*

res = c.latex2page(r**'C:\Users\myname\Courses\MyDoc.pdf'**, **'My Canvas Page'**, insertPDF=True)