# DEEP LINK LTI INTEGRATION GUIDE FOR BLACKBOARD

CONNECT FOR EDUCATION, INC.

# Connect For Education Deep Link LTI Integration Guide Contents

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## Before Configuring Your Connect For Education Deep Link LTI Course in Blackboard

**Important!**

Step 1, 2 and 3 must be completed by a Blackboard Site Administrator. These first three steps will only need to be completed once, prior to the set-up of your school's first Connect For Education course using deep link integration.

The remaining steps will need to be completed by the course instructor and/or instructional design team and must be completed for each course shell each semester.

For any questions or concerns about this process, please contact the Connect For Education Technical Support Team for additional guidance.

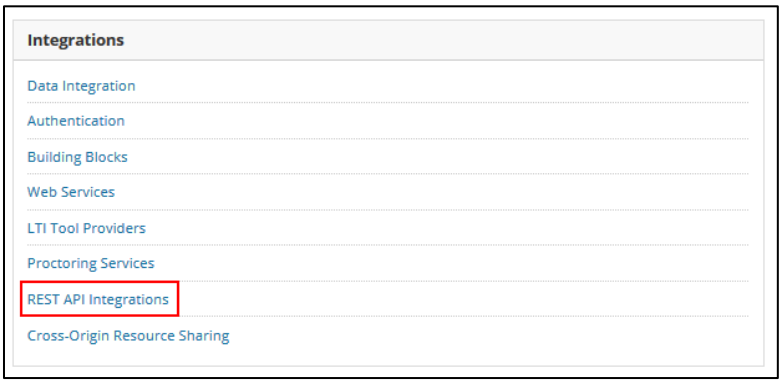
REMINDER: You can proceed directly to Step 4 (skipping Steps 1 through 3), if your school has previously used Connect For Education deep link integration.

## Step 1: Create REST API Integration

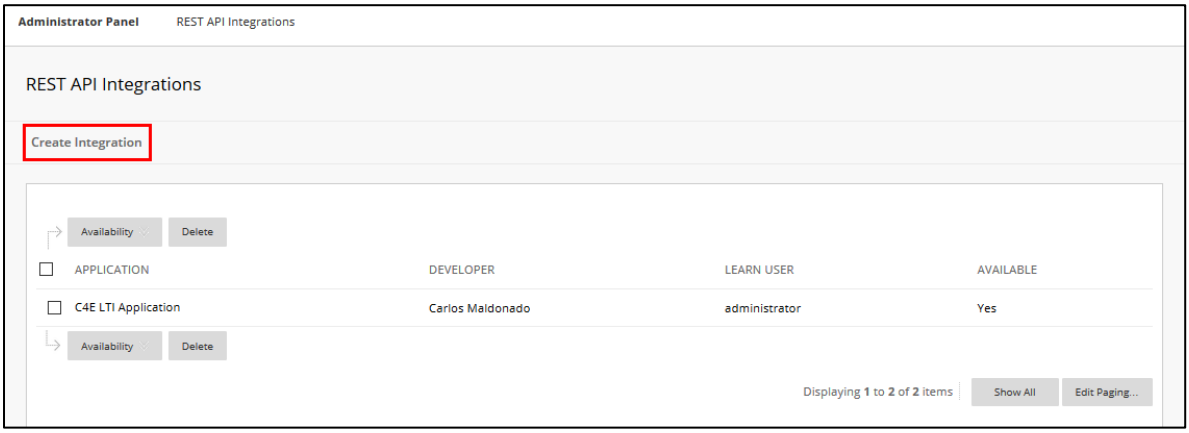
**This step must be completed by a Blackboard Site Administrator. This step will only need to be performed once. If your school has previously used deep link integration for Connect For Education courses, this step can be skipped.*

Before you can use C4E deep link LTI integration with Blackboard Learn, a Blackboard Administrator must register it with your Blackboard Learn system using a REST API Integration.

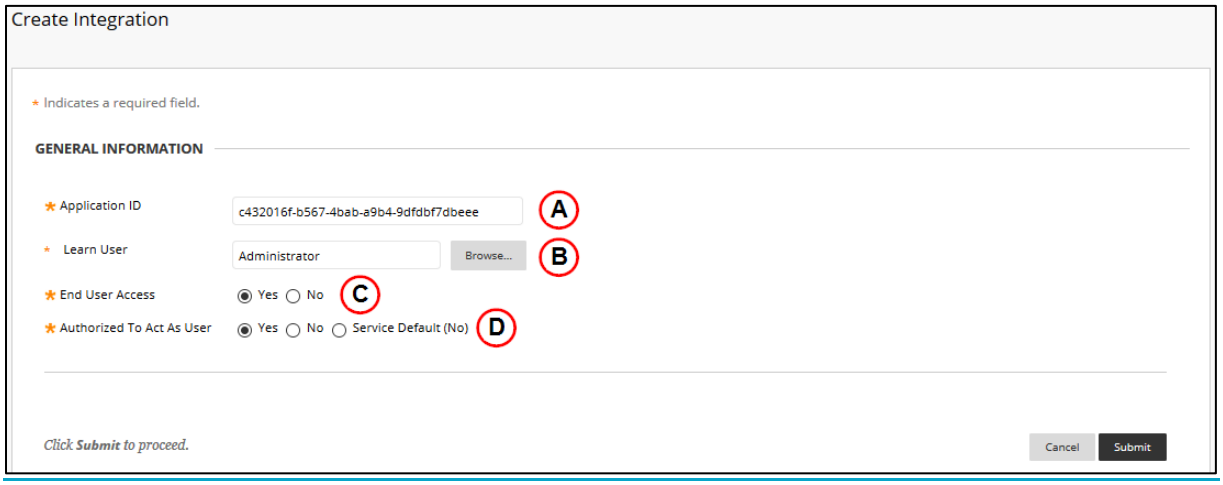
1. Access the '**REST API Integrations**' routine from the **System Admin Menu** in Blackboard (**System Admin** > **Integrations** > **REST API Integrations**).




2. On the '**REST API Integrations**' page, select '**Create Integration**.'



3. Complete the following fields on the '**Create Integration**' screen:




A. **Application ID**: This will be provided to you by the Connect For Education Technical Support Team.

B. **Learn User**: Enter the username for the appropriate Site Administrator. This account needs to be a top-level admin account that includes LTI provider creation, as well as placement creation and management.
*Note: Click the Browse button to search through the list of Blackboard Learn users to find the desired user for this integration. Typically, an integration acts as an Administrator or some other user created for integration management. Ideally, the user has only the permissions that the integration needs to function properly.*

C. **End User Access**: Yes
*Note: For third-party integration, set End User Access to Yes. End users will sign in with their own Blackboard Learn ID to use the integration. Each user's access is then limited to his or her own permissions. If you set End User Access to No, the integration always has access as if it were the Blackboard Learn user indicated on the form.*

D. **Authorized To Act as User**: Yes

4. Submit to save your settings for the integration.

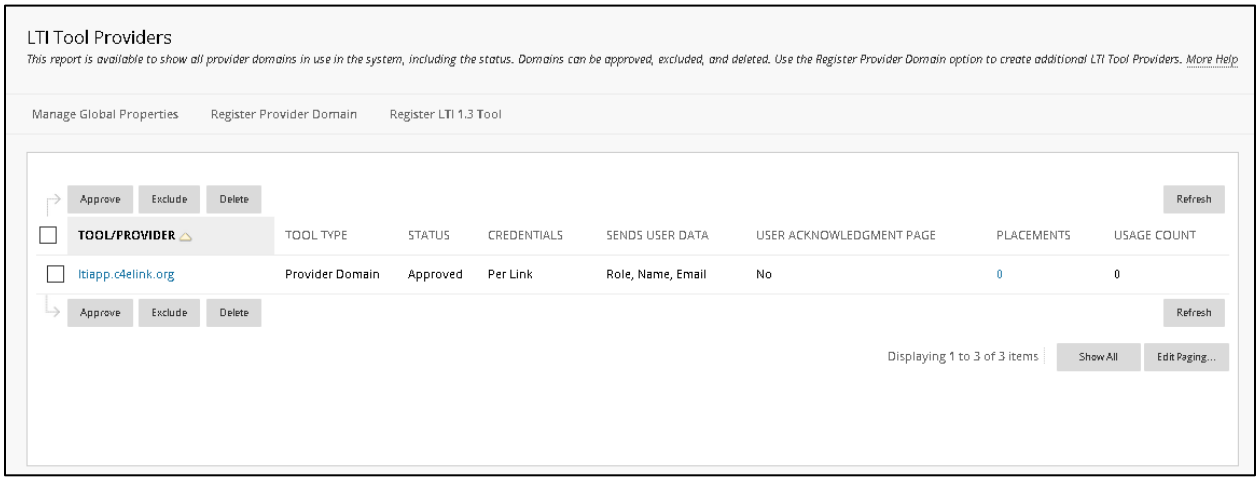
## Step 2: Notify C4E

**This step will only need to be performed once. If your school has previously used deep link integration for Connect For Education courses, this step can be skipped.*

**Once the C4E Application ID has been added to your Blackboard Learn system (Step 1), please provide the Connect For Education Support Team with your school name and blackboard course site URL.**

We will need this information to add your college/university as a 'New Blackboard Client' to facilitate the remaining integration.

Once the Connect For Education Team adds your school to our system, the C4E Course Import Tool will be automatically added to your Blackboard Learn site and you will then see 'ltiapp.c4elink.org' as an 'Approved LTI Tool Provider.'




**Please Note:** Once the tool has been added by C4E, the Connect For Education Support Team will send you an email containing the following information that you will need for the next step:

- Tool Provider URL
- Tool Provider Key
- Tool Provider Secret

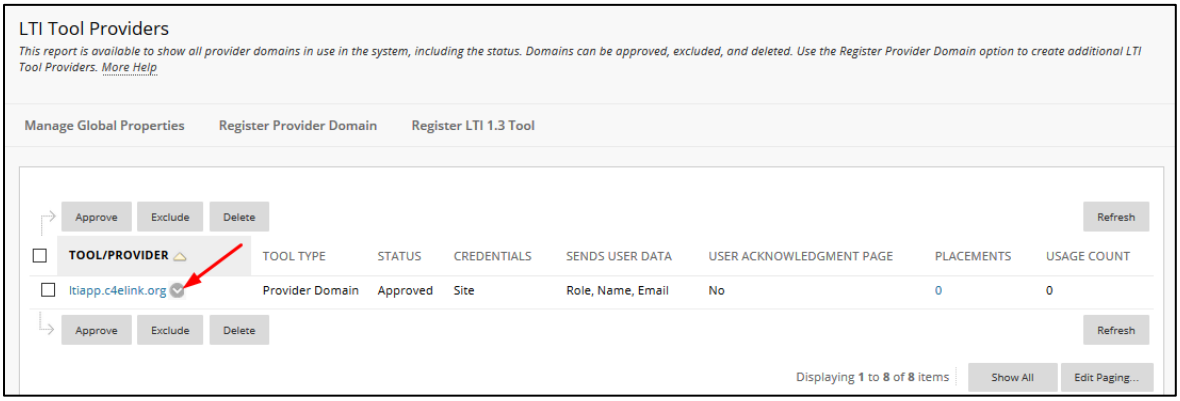
## Step 3: Adding Placement for C4E Deep Linking Tool

**This step must be completed by a Blackboard Site Administrator.*

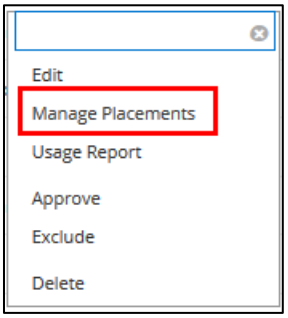
*This step will only need to be performed once. If your school has previously used deep link integration for Connect For Education courses, this step can be skipped.*

Once the LTI Provider for the C4E Course Import Tool has been created, you will need to add a 'Placement' for the tool. This process will make this tool available to all Blackboard instructors at a global level. If you wish, you do have the option to restrict the tool to only the instructors who will be using it.

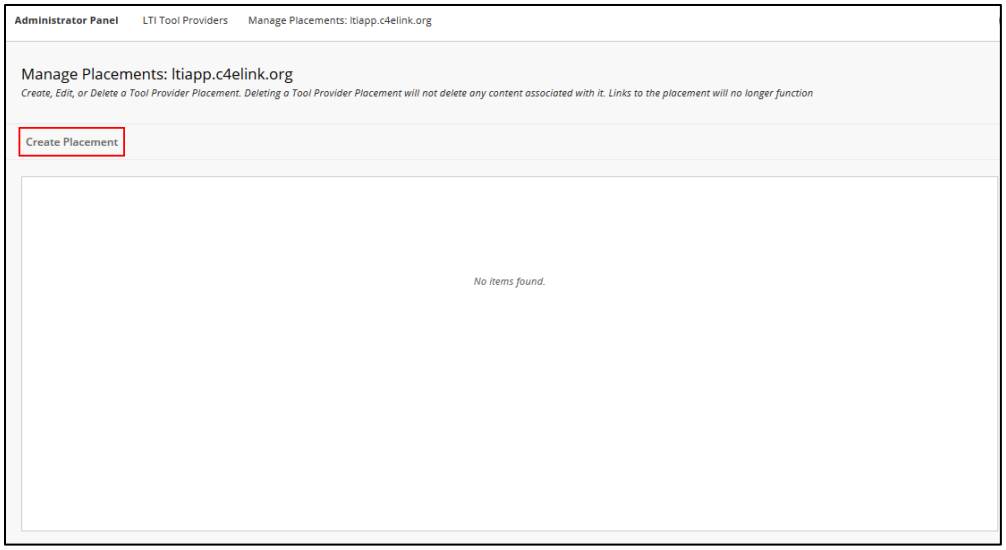
1. From within the '**LTI Tool Providers**' routine in Blackboard, click the downward arrow to the right of the new 'ltiapp.c4elink.org' tool that was added to your Blackboard system in the previous step.



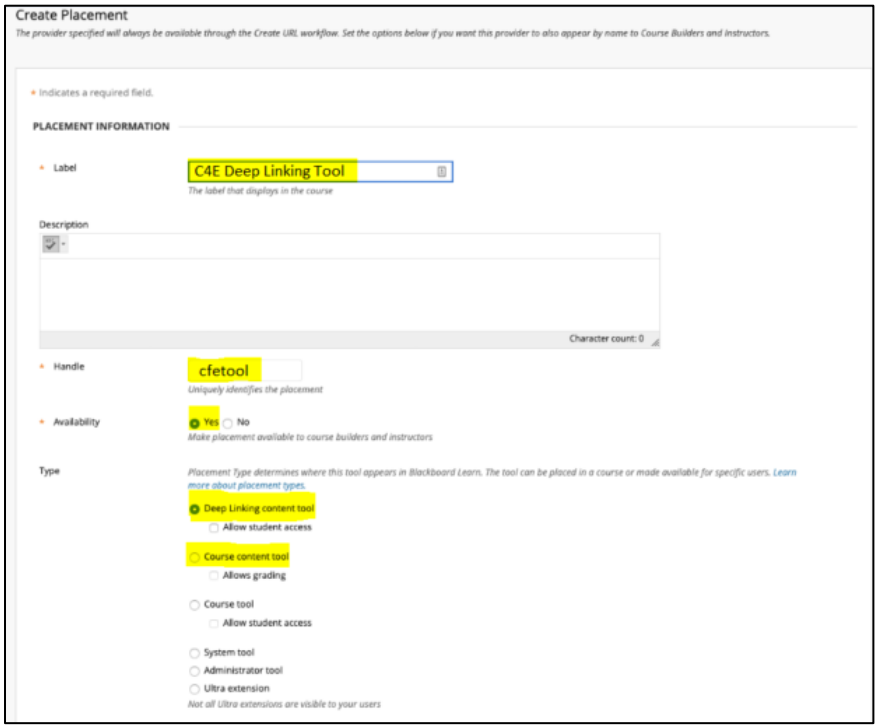

2. From the dropdown menu, select '**Manage Placements**.'




3. Click the '**Create Placement**' button.




4. In the '**Placement Information**' area of the screen, enter the following:
   - **Label**: C4E Deep Linking Tool
   - **Handle**: cfetool
   - **Availability**: Yes
   - **Type**:
     - **Deep Linking content tool**– Leave 'Allow student access' unchecked
     - **Course content tool**– Leave 'Allows grading' unchecked



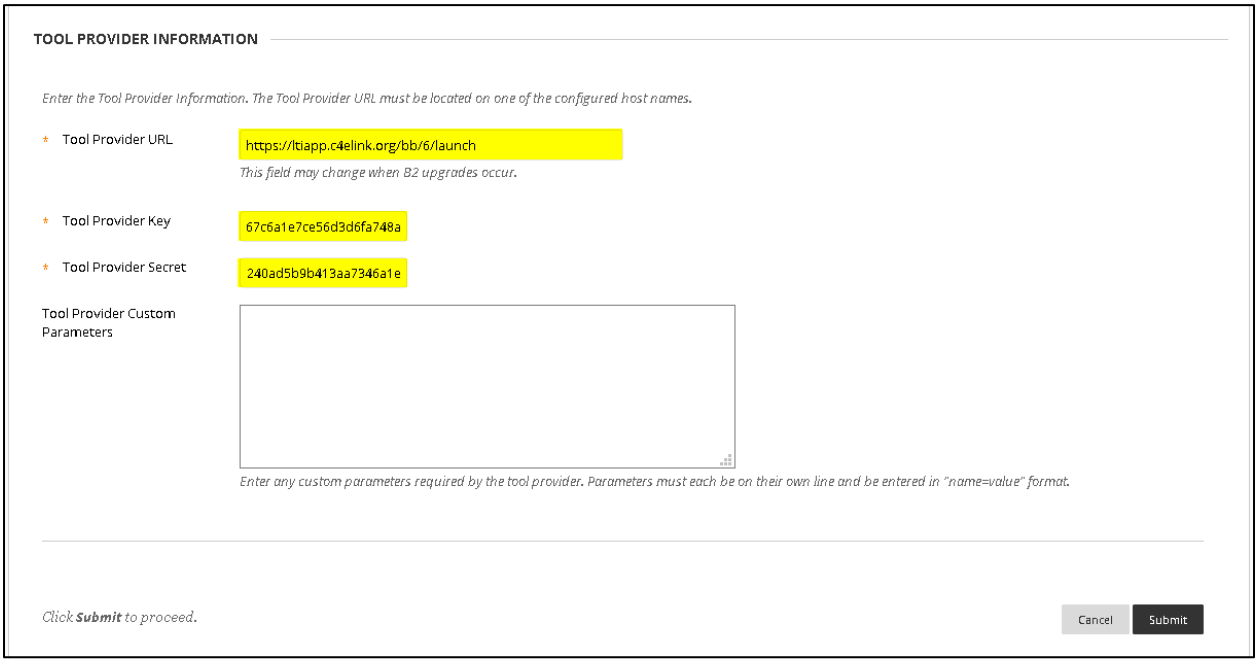
**Please note:** depending on the version of your Blackboard LMS, your options in the 'Type' area of the 'Create Placement' screen may look as follows:

In this case, you will need to select the following:

- **Course tool**: Not activated– Leave default of 'Non-student'
- **Course content tool:** Activate– Check 'Supports deep linking'

5. In the '**Tool Provider Information**' area of the screen, enter the information provided to you by the Connect For Education Support Team (from previous step):

- Tool Provider URL
- Tool Provider Key
- Tool Provider Secret




6. Click '**Submit**' to save these changes.

## Step 4: Perform Deep Linking in Blackboard Course Shell

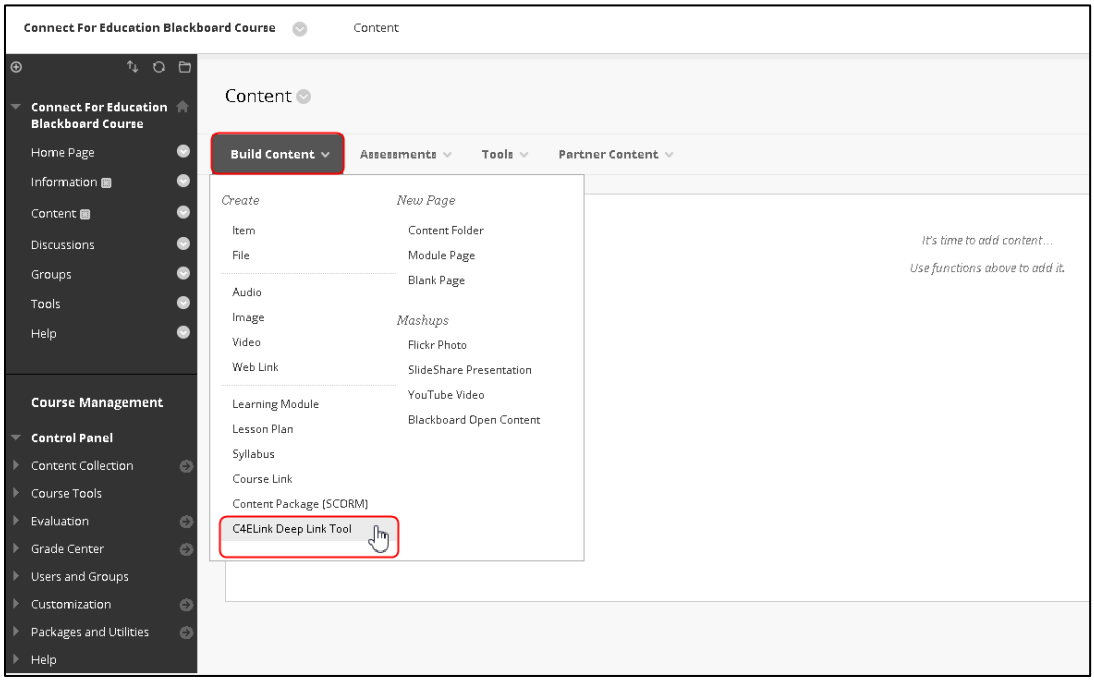
*This step must be performed using a Blackboard Instructor account. Admin accounts will not be able to perform this function unless they emulate the instructor role or login as an instructor.

**Please proceed with this step only after you have received your Course Confirmation email from the Connect For Education Technical Support Team, and after you have verified that no further changes are necessary for your course. Ideally, ALL course customizations should be addressed prior to completing the remaining steps outlined in this document.**

**Note:** Running this import using the C4E Course Import Tool will automatically add an additional LTI Tool Provider labeled 'lti.c4elink.org' to your Blackboard Learn site as an 'Approved LTI Tool Provider.'

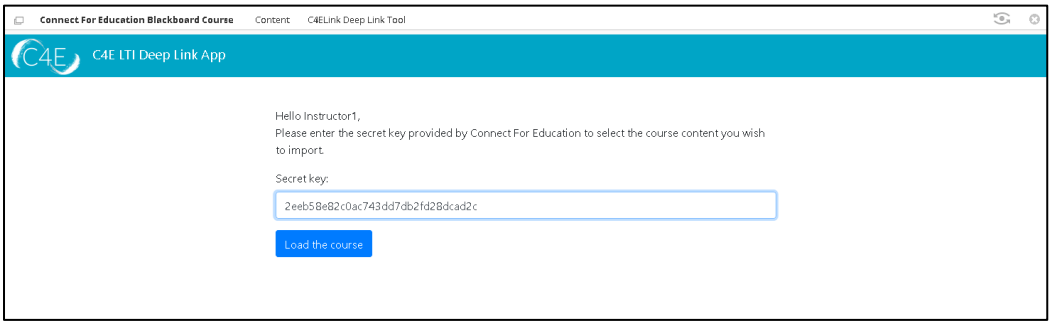
1. Access the '**C4E Deep Linking Tool**' (created in Step 3) from the '**Build Content**' area of the course.

   **Important Note**: You must launch the tool from the course folder/location where you would like the C4E content to be imported.

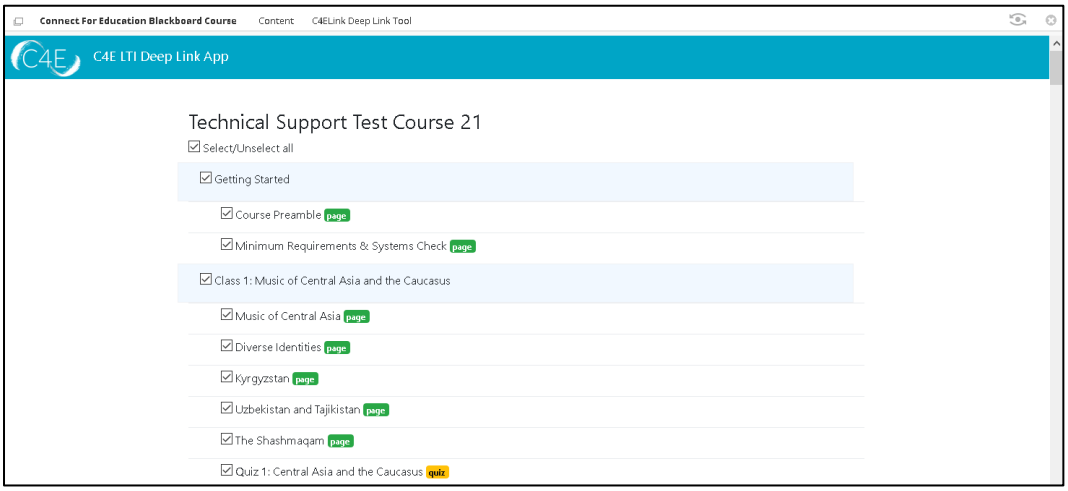



2. When the tool is launched, you will be prompted to enter the 'Secret key' for this specific course. This key will be provided to you by the Connect For Education Technical Support Team. Enter the 'Secret key' for the course and click the '**Load the course**' button.

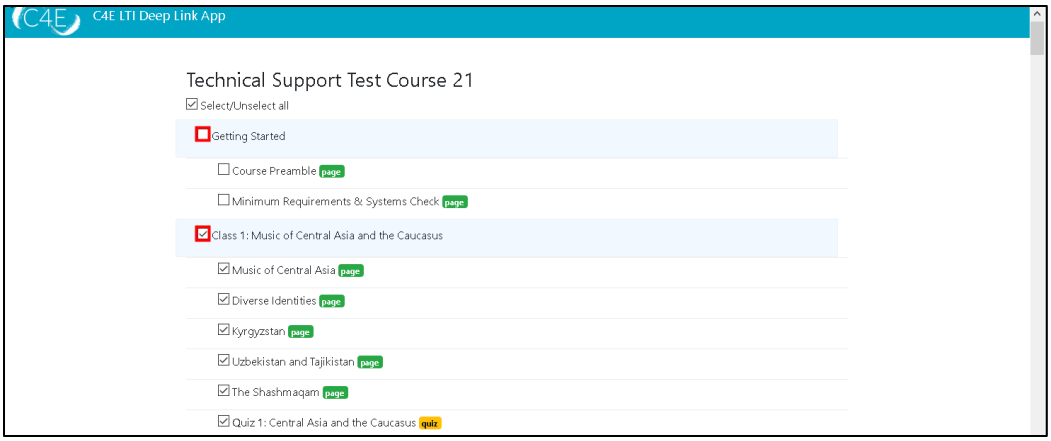
**Note:** If you are running multiple courses and you have been provided with multiple 'Secret keys', please be sure to enter the 'Secret key' associated with the specific course shell you have accessed in Blackboard.




3. On the content selection screen, check the '**Select/Unselect all**' checkbox to select all items and import all course modules:



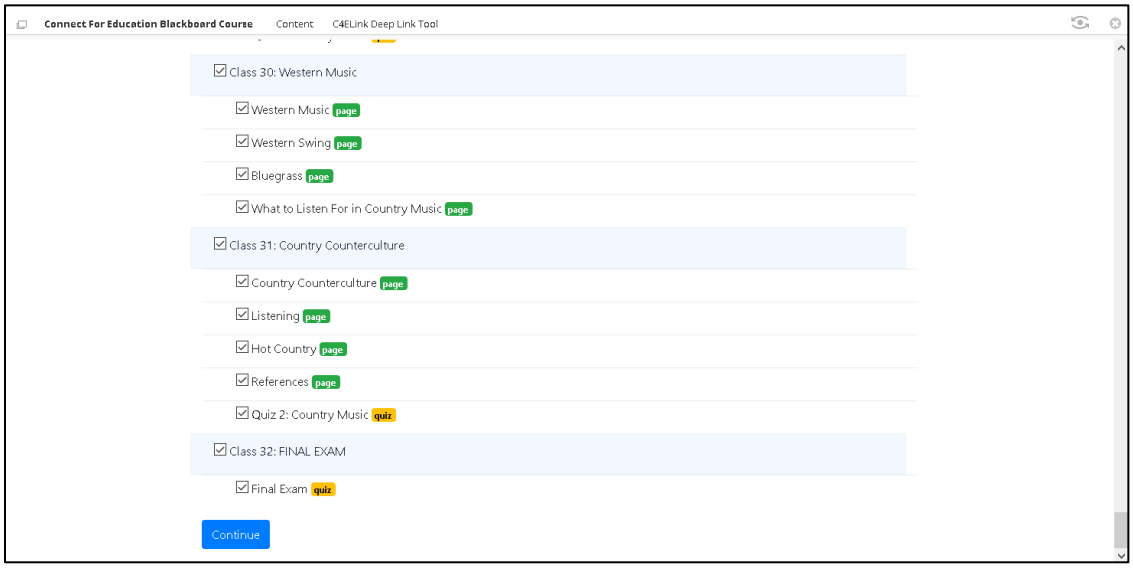

Alternately, you may select individual modules by clicking the checkboxes to the left of each desired module/item:



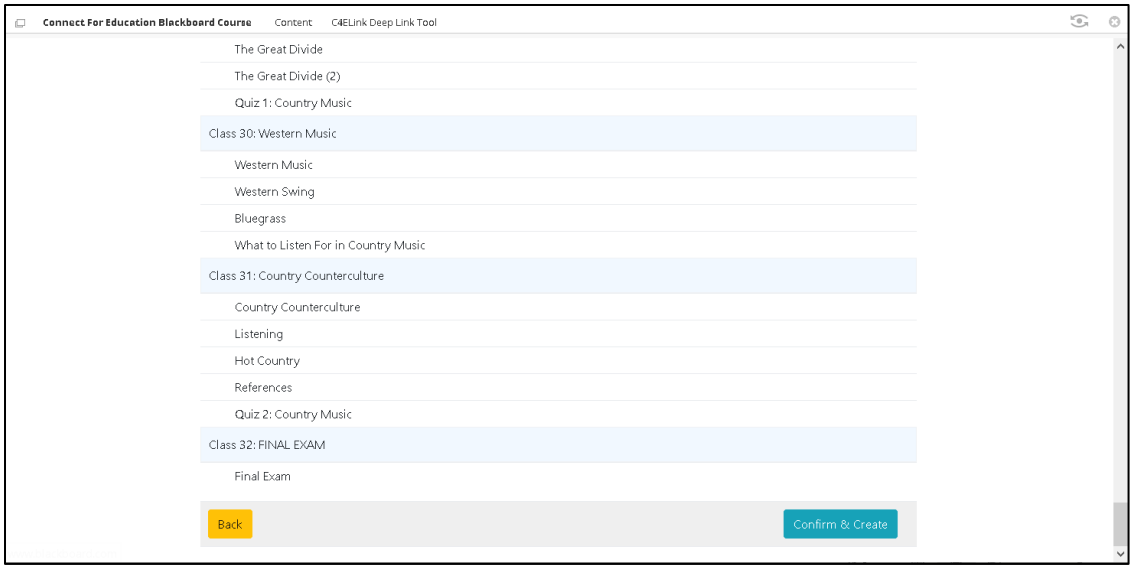
***Helpful Hint:*** *Depending on the amount of content selected, this process may take some time. To help ensure the efficiency of the deep link import process, we recommend importing portions of the course at a time (i.e., importing the first and second halves of your course separately).*

*Please also note, once all content has been pulled in the first time, this process should only be repeated for newly created items (i.e., new discussion forums created after the initial content pull). Pulling content that has already been pulled will result in duplication.*

4. Once you have selected the content you wish to import, click the '**Continue**' button (bottom-left).

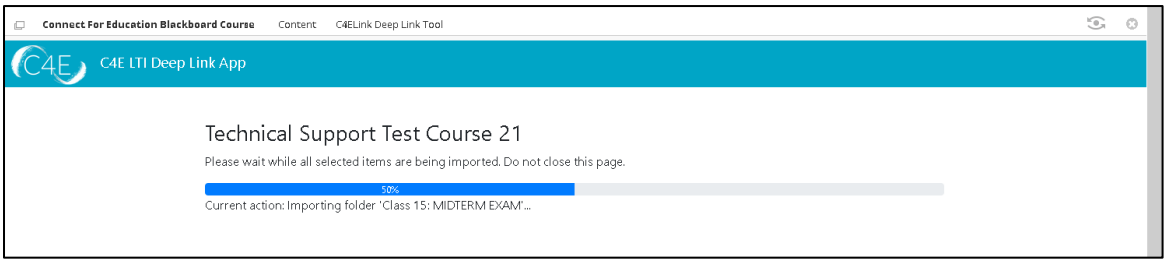



This will bring you to a confirmation screen, allowing you to review the selected content:

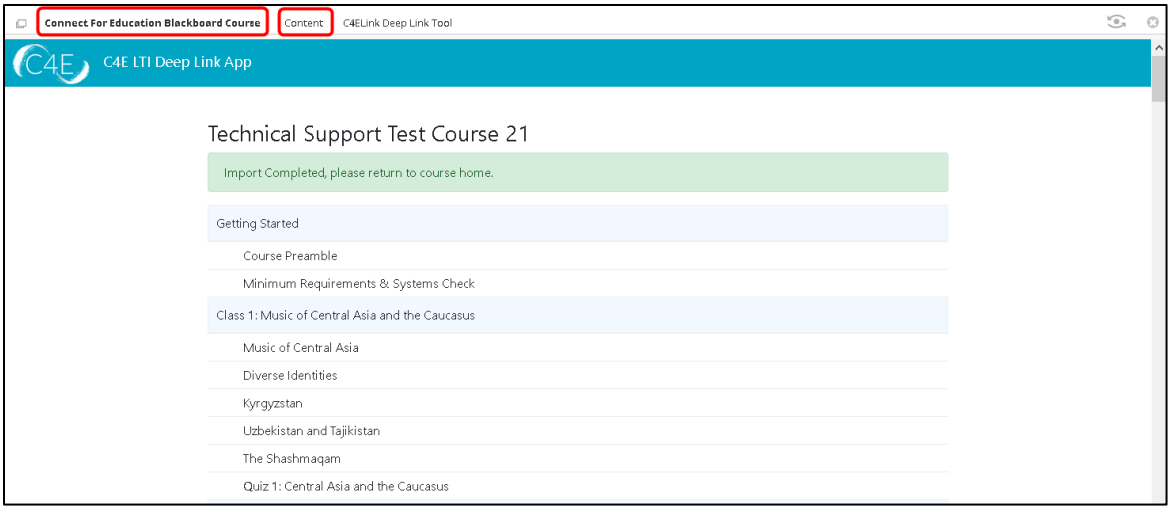



If any adjustments are necessary to the content being imported, simply click the '**Back'** button to return to the content selection screen. Otherwise, click '**Confirm & Create**' to start the content creation process. *As a reminder, depending on the amount of content selected, this process may take some time.*

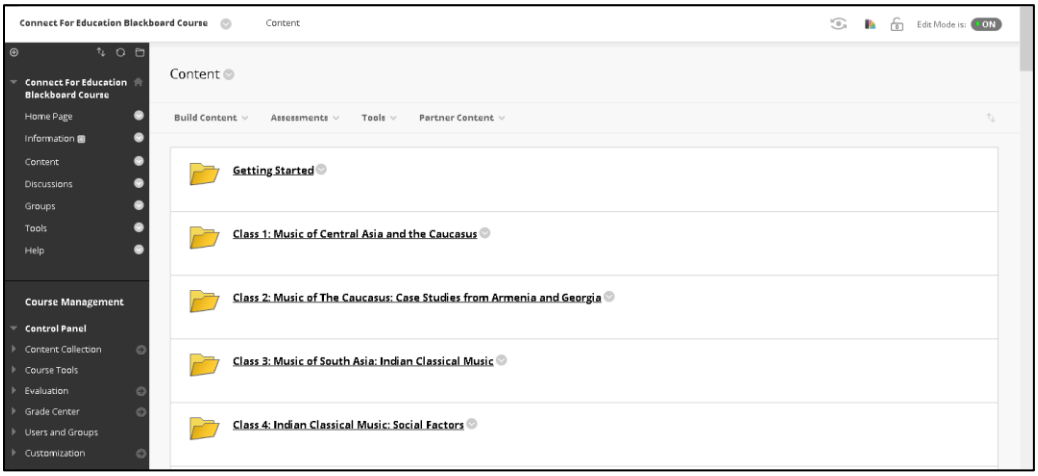
A status bar will display the progress of the import:




Once complete, a confirmation message will be displayed. Use the Blackboard course breadcrumbs to return to the course.




Course content will look similar to the following:




**Please note:** Instructors should not be prompted for access codes when accessing the LTI course link(s). By design, the system should only be prompting users with the 'Student' role to enter access codes. Following the release of Blackboard 3900.44.0, if you are being prompted for an access code, your Blackboard admin may need to adjust your account to ensure you have the following roles assigned within the Blackboard LMS:

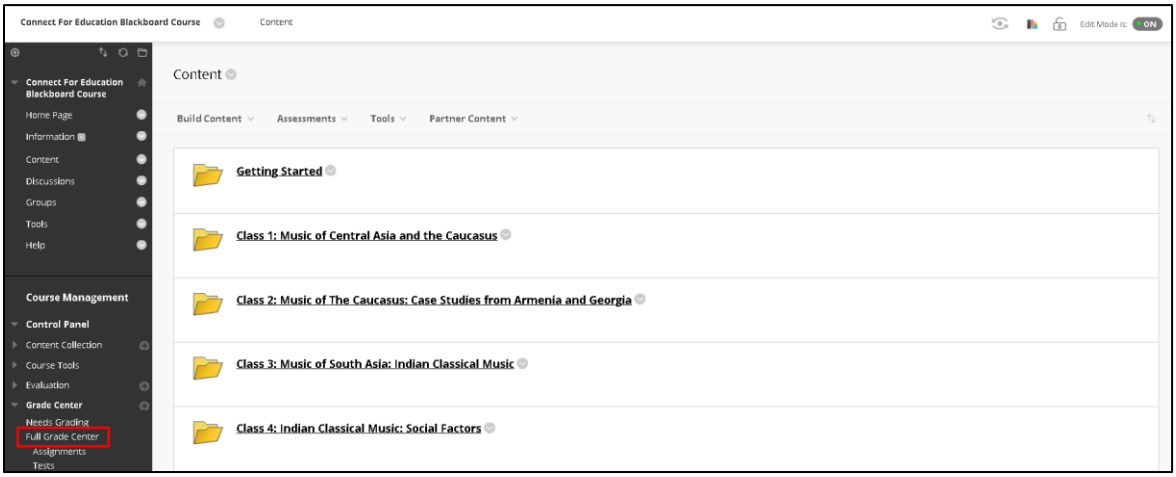
- Institution Role: Faculty
- Course Role: Instructor

For assistance troubleshooting, please contact the Connect For Education Technical Support Team for additional guidance.

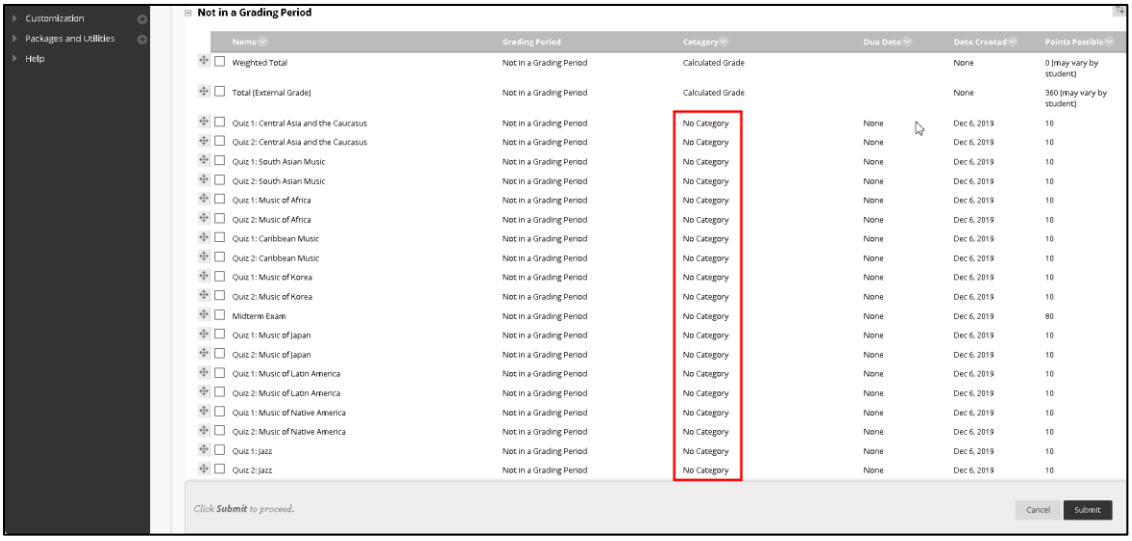
## Step 5: Setting Up Your Grade Center

Once your course content has been pulled into your Blackboard course shell, you will need to setup your Grade Center to mirror the weights/values of the Connect For Education gradebook. This will ensure the accuracy of all grades being passed back and ensure that the final grade reflects the expected grading structure. *Please note that this process may vary, if your Connect For Education gradebook is set to a flat gradebook and does not feature any weighted categories.*

1. From the **Control Panel** (bottom, left-side menu), click **Grade Center** and select the **'Full Grade Center'** option:

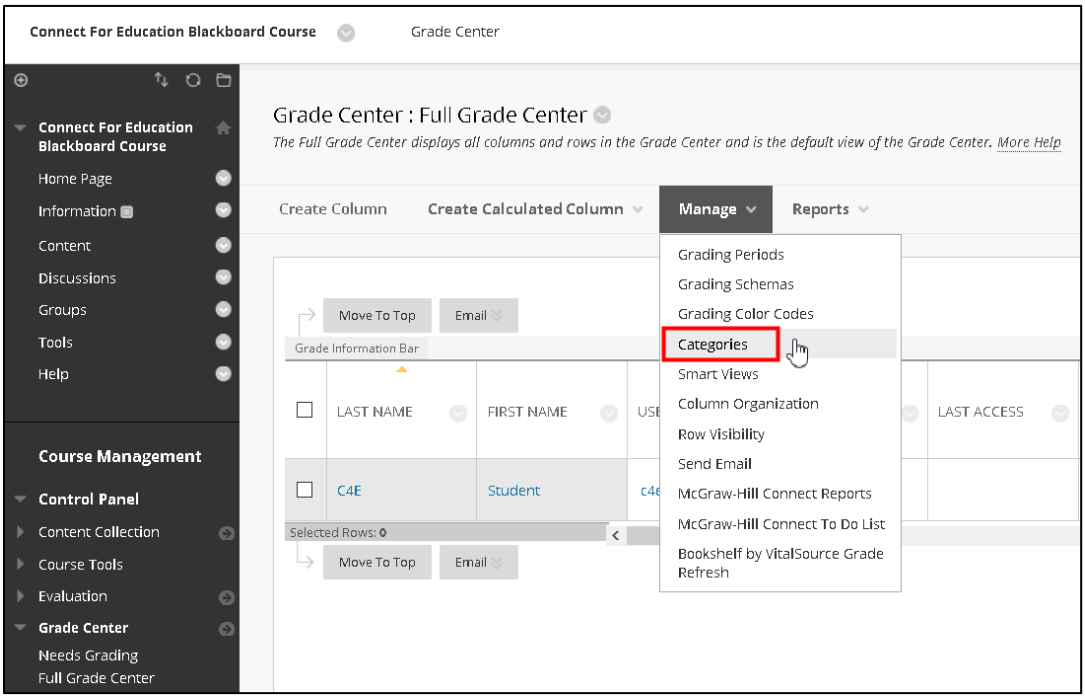



When the course items are imported from your Connect For Education course, they are initially imported with no grade category:



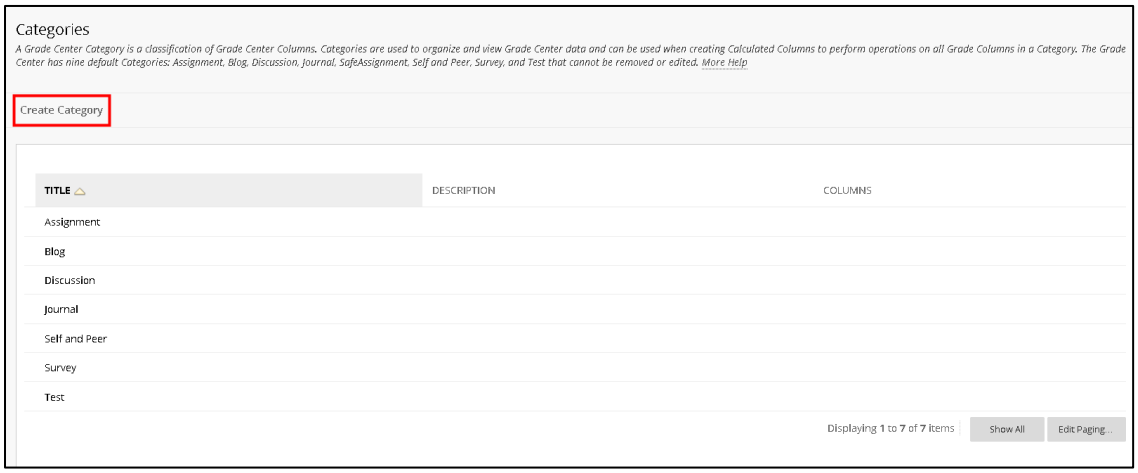
In order for the Grade Center to calculate grades using weighted categories, you will need to assign each item an appropriate 'Category.' In order to do so, you will need to first create the appropriate categories for your coursework items.

2. Click the '**Manage**' menu and select the '**Categories'** option:



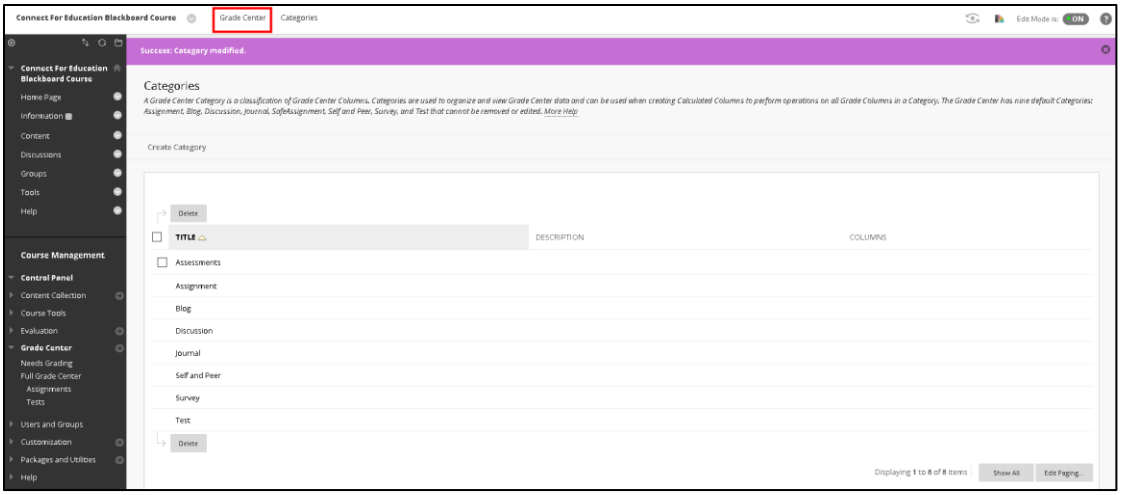

Note: Categories for 'Test' and 'Assignment' already exist in Blackboard, by default. A category will need to be created for Quizzes/Assessments in order to weight these items by category.

3. Click the '**Create Category**' button to create a new category.

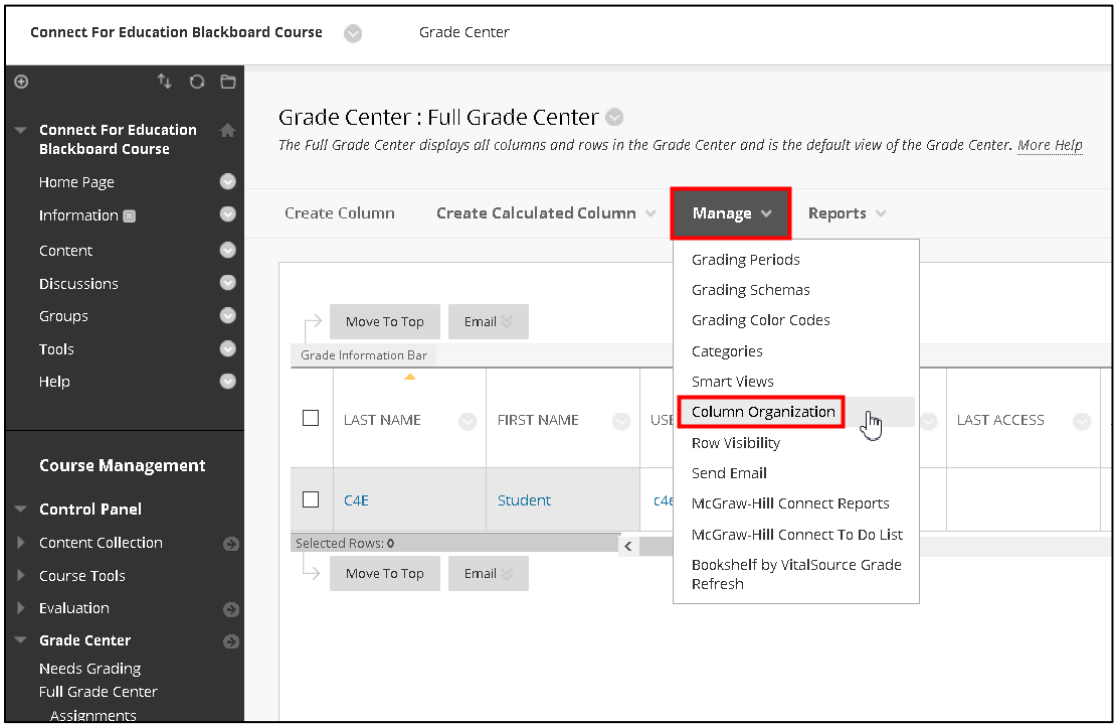


4. Enter '**Assessments**' or '**Quizzes**' at the '**Name**' field and click the '**Submit**' button.

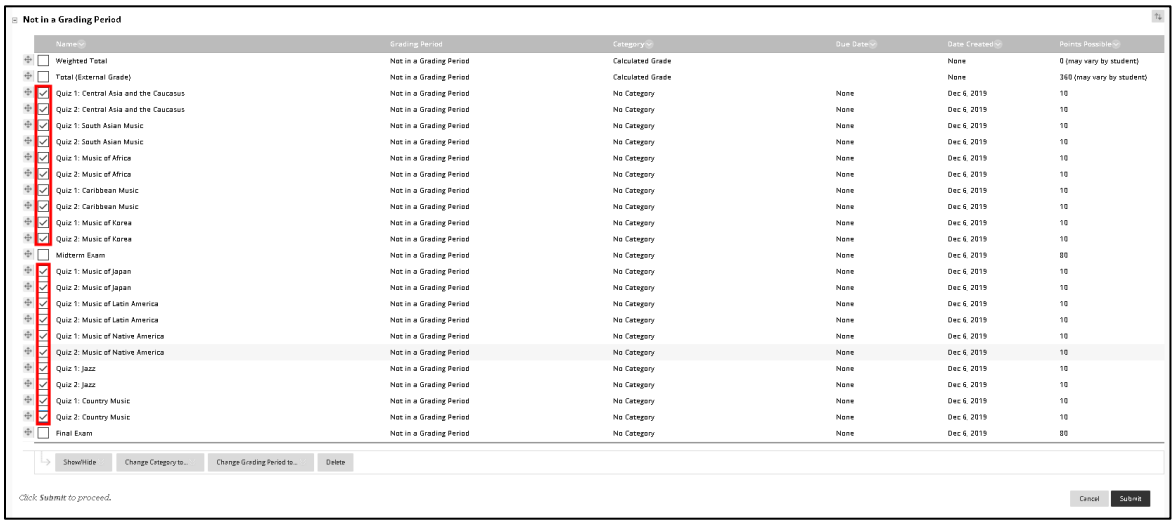
5. Return to the Grade Center by clicking the '**Grade Center**' link in the course breadcrumbs.



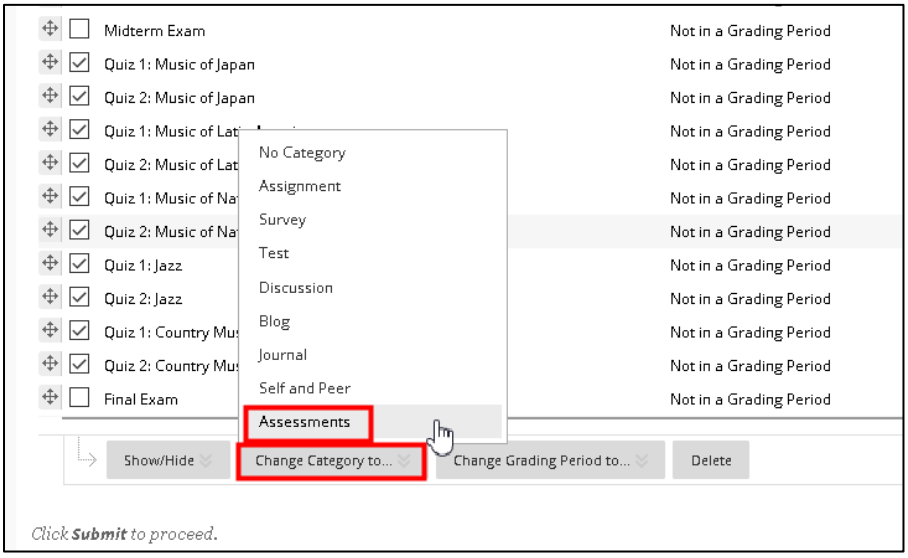
6. Click the '**Manage**' menu and select the '**Column Organization**' option:




7. Check the checkboxes associated with all quizzes/assessments in your course.

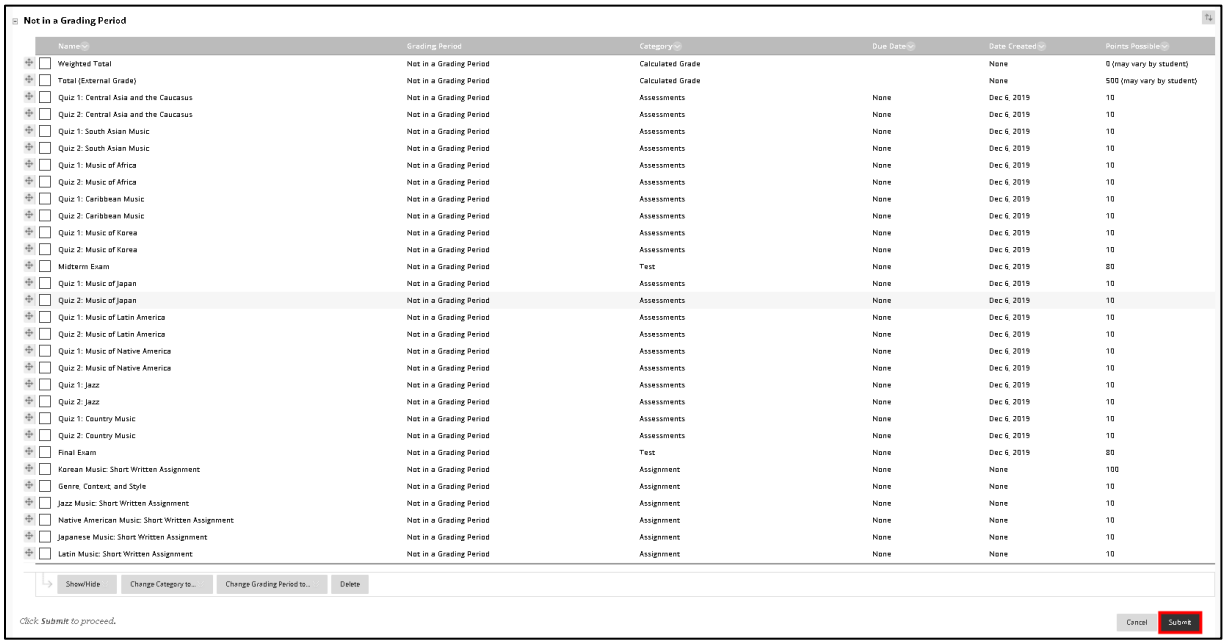


8. Click the '**Change Category to…**' button and select the newly-created category for assessments/quizzes.

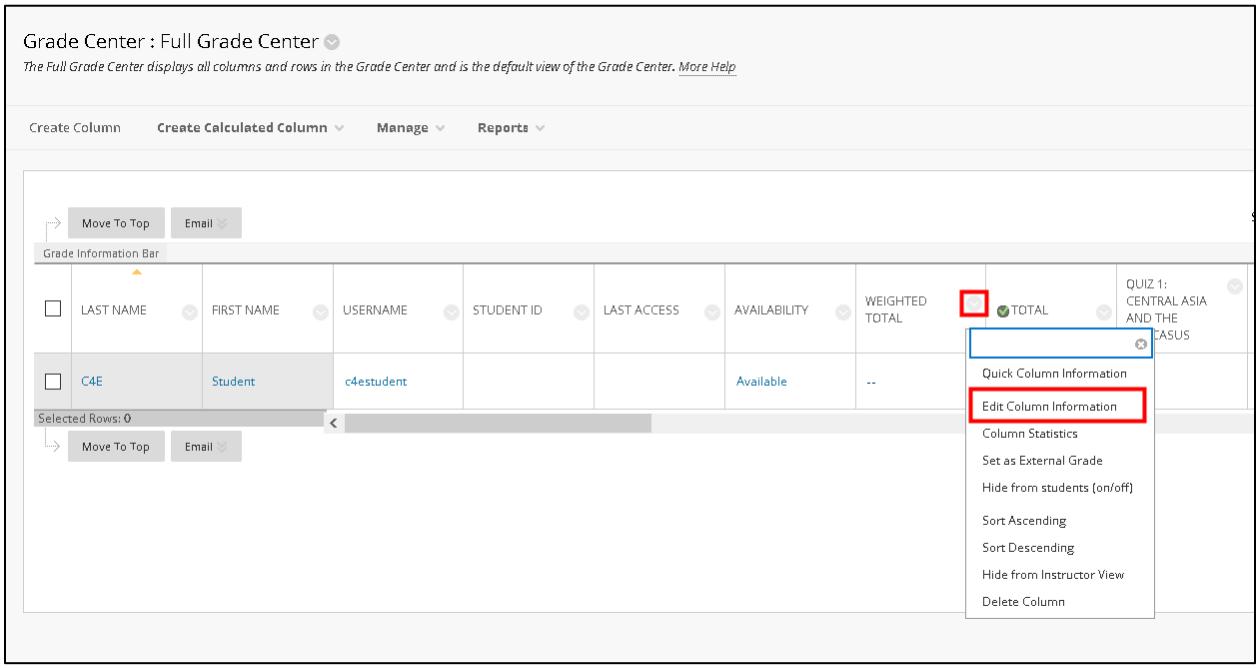



9. Repeat Steps 7 and 8 for the Assignments and Exams in your course. Assignments can be changed to the 'Assignments' category and the Midterm/Final Exams can be changed to 'Test' or another category of your choice.

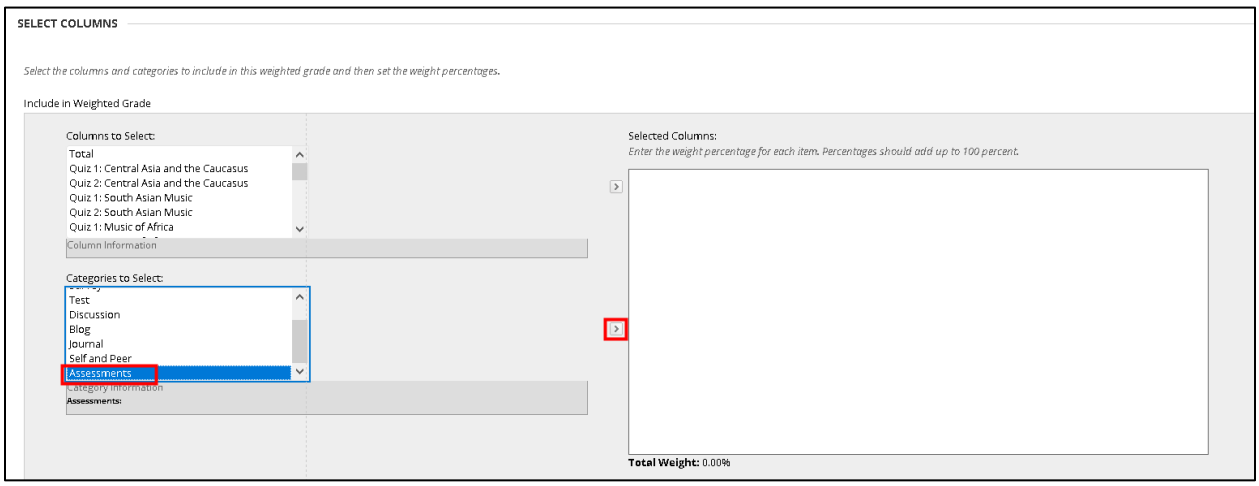
10. Once all items in the course have been assigned to a grade category, click the '**Submit**' button to save your changes.



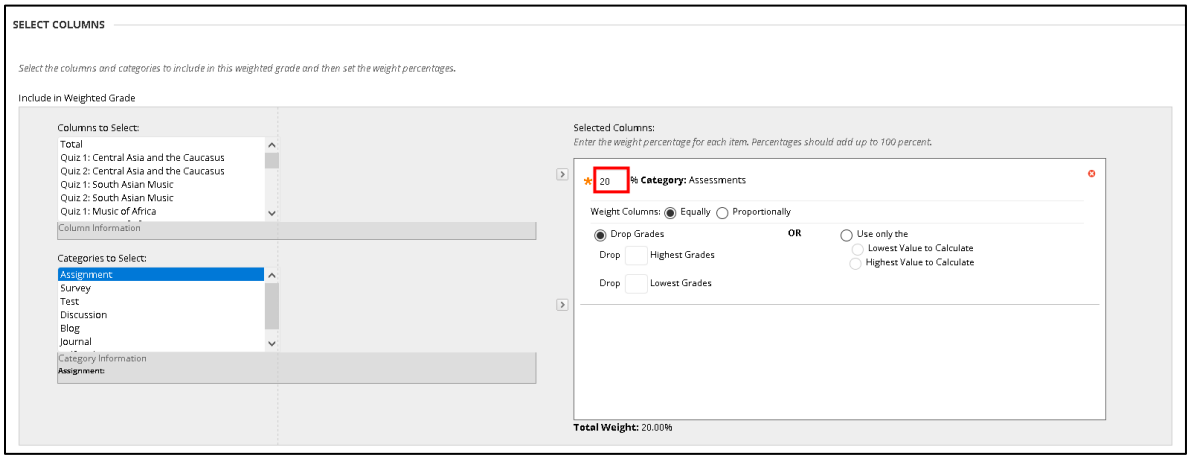
11. Once categories have been assigned to all coursework items, the next step will be to adjust the Weighted Total column to correctly reflect the grade category weights of the Connect For Education gradebook. Click the downward arrow to the right of the '**Weighted Total**' column header and select the '**Edit Column Information**' option.



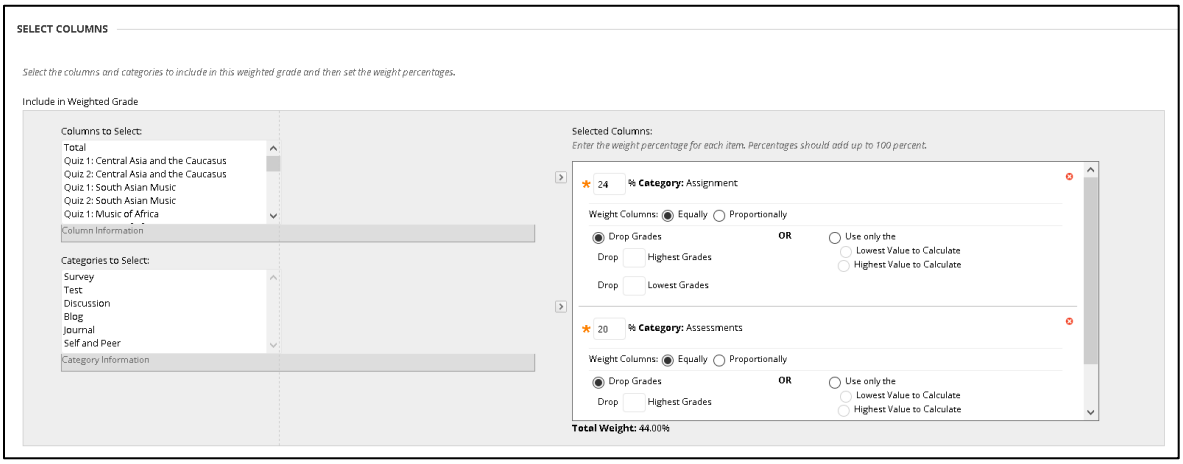

12. In the '**Select Columns**' area of the '**Edit Weighted Column**' screen, select the category (i.e. Assessments) you would like to weight from the '**Categories to Select**' field and click the right facing arrow to move the category to the '**Selected Columns**:' field.



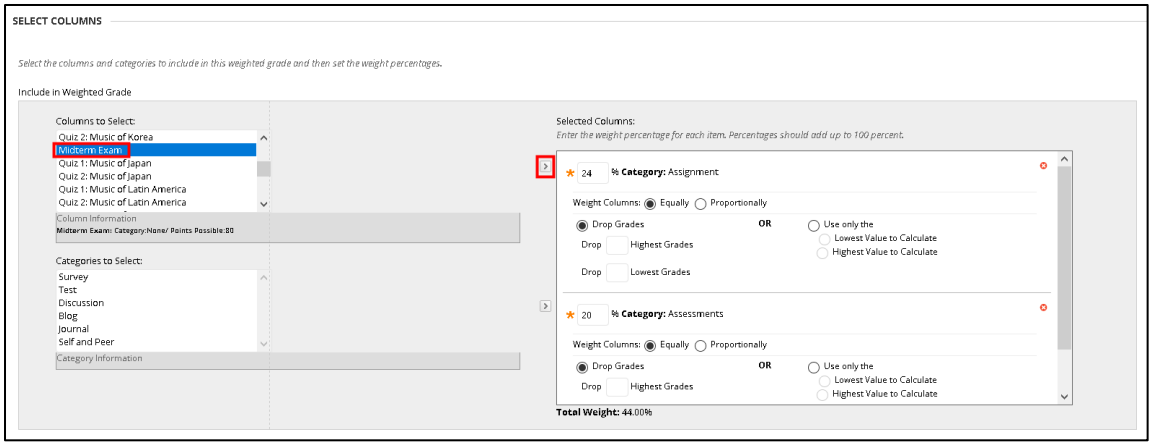
13. At the '**% Category**' field, enter the grade percentage that should be associated with the category selected.



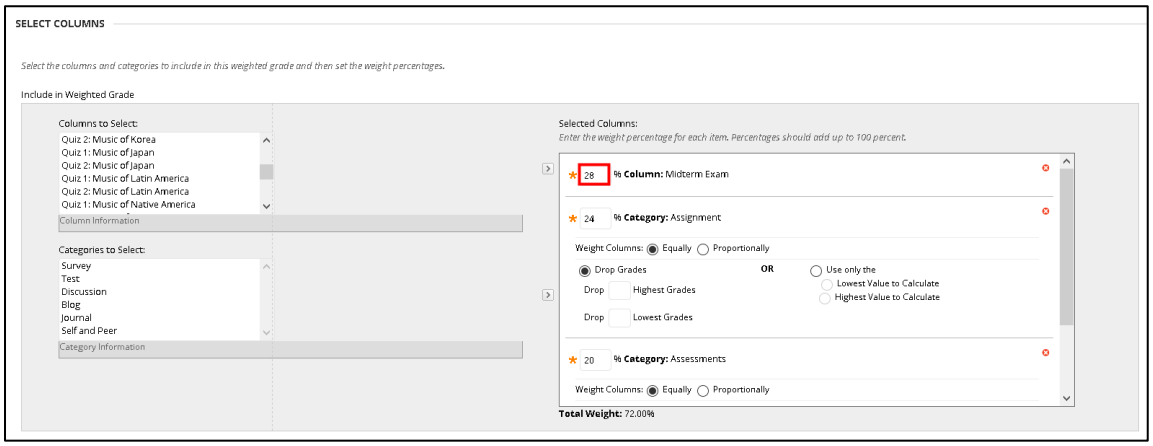

14. Repeat Steps 12 and 13 for the remaining grade categories (i.e. Assignments).



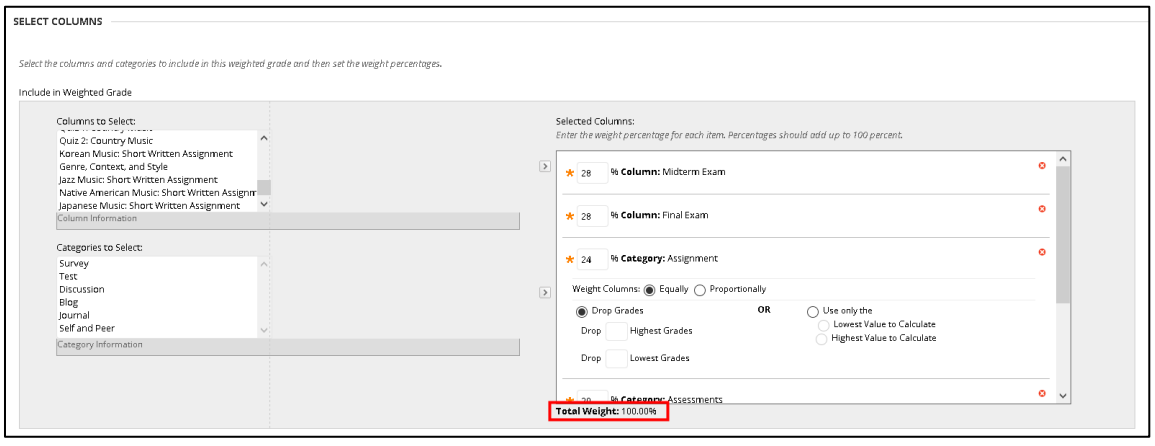

15. If you would like to weight your exams separately instead of using the 'Test' category, select the exam from the '**Columns to Select**' field and click the right facing arrow to move the category to the '**Selected Columns**:' field.



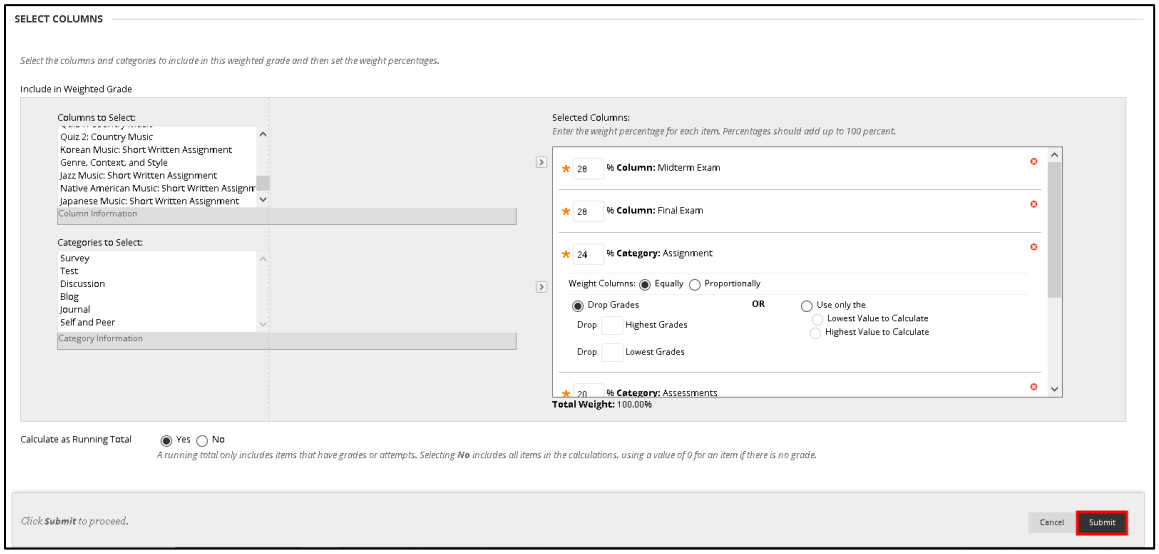

16. At the '**% Column**' field, enter the grade percentage that should be associated with the exam selected.




17. Repeat this process for any other items you wish to weight individually. The '**Total Weight**' should add up to 100.00% once all changes are complete.



18. Click the '**Submit**' button to save your changes.




## Making Changes in Your Course

- Prior to importing content into your Blackboard course shell, we encourage you to complete any customizations to your Connect for Education course on the C4E LTI course site (https://lti.c4elink.org/).

- Please note, once all content has been pulled in the first time, this process should only be repeated for newly created items (i.e., new discussion forums created after the initial content pull). Pulling content that has already been pulled will result in duplication.

- With LTI integration, please be aware that you essentially have two course shells (one on Blackboard and one on Connect For Education's LTI course platform). Once Connect for Education course content has been imported into your Blackboard course shell, you must be cautious to maintain consistency between the course shells when making any changes. To prevent confusion, we strongly recommend mirroring your Blackboard course structure with the course structure on Connect For Education's LTI site.

- As grades are synced regularly, there may be a very short amount of time where grades will be blank.

- The table below provides guidance on some common changes. As you will see, some changes can be made exclusively on the Blackboard side, while others will require you to complete the changes on **BOTH** platforms (Blackboard and the Connect For Education LTI site).

| Types of Changes | Location of Change |
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| Grading written assignments | When grading written assignments, you may do so directly from the C4E grading tool, which can be accessed from the Blackboard assignment. This will record the grade on the C4E LTI course site, which will then be passed back to the Blackboard Grade Center during the grade sync. |
| Calculating final grades/Entering zeros for unsubmitted items | To calculate final grades, zeros will need to be manually entered for all unsubmitted course work. You will need to enter zeros directly in the Blackboard Grade Center. This cannot be done on the C4E LTI course site. We recommend performing this step very soon after an assignment deadline has closed, and once you are certain students can no longer submit this item. If assignments remain open after zeros have been entered, students will be able to complete the assignments and the grade they receive will override the zero with an updated score. |
| Adjustments to student grades | We recommend making all grade changes directly at the C4ELink LTI site. Doing so will ensure that the correct grade remains in the Blackboard Grade Center. Please be aware that any grade changes made in Blackboard may be overwritten if there is an update to the grade in C4ELink. |
| Setting or adjusting class deadlines | We advise that all deadlines be implemented on the Connect For Education LTI course site to prevent any unnecessary confusion. |
| Modifying exam times or number of attempts for specific students | This will need to be done using the 'User overrides' feature on the Connect For Education LTI course site. |
| Modifications to *existing* assignment or discussion forum text* | This can only be completed on the Connect For Education LTI site.<br><br>**Forums implemented directly in the Blackboard LMS are an exception, and can be modified from Blackboard.* |
| Course/lesson ordering | While the course/lesson ordering can technically be different in Blackboard, we suggest making changes on both platforms for the sake of consistency. |
| Adding announcements | As the Connect For Education course does not offer an 'Announcements' block, course announcements should be implemented in Blackboard. |
| Creating new discussion forums | While new discussion forums can be created on either platform, forums created on the Connect For Education LTI site ***after*** course content has been pulled will need to be added in individually using the steps outlined earlier in this document. |

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| Moving or deleting items | We suggest making changes on both platforms for the sake of consistency. Exercise caution when removing graded items from the course. You may need to review the impact on your course gradebook. If a quiz is being moved or removed, consider that the quiz questions may also be included on the Midterm/Final and may need to be adjusted. |
| Adding files/documents | While this can be done in either platform, files and documents added in Blackboard may be more easily accessed by students. Files/documents added on the Connect For Education LTI site ***after*** course content has been pulled will need to be added in individually using the steps outlined earlier in this document. |
| Modifying point values for quizzes, assignments, and/or forums | To ensure accuracy of synced grades, this will need to be done on both platforms. |
| Modifying Grade Center structure/course grading scheme | As the Grade Center is facilitated in Blackboard, all adjustments must be maintained in Blackboard. If you choose to reference the Connect For Education LTI course site for student grades, changes should be made there as well. |

**If you are interested in making a modification to your course and are unsure where a change should be made, please contact Connect For Education Technical Support and we would be happy to provide guidance.*

## Calculating Final Grades in Blackboard

As a reminder, when calculating final grades for students, zeros will need to be entered for any empty grades. With deep link LTI integration, the process of entering zeros must be performed in the Blackboard Grade Center, not the Connect For Education Gradebook. Please refer to your Blackboard procedures for entering zeros for any items that students did not complete.

Typically, when coursework items have deadlines, we recommend entering zeros very soon after an assignment deadline has closed, and once you are certain students can no longer submit this item. For coursework items without deadlines, this process should really occur at the end of the semester once no more work will be done. Keep in mind, if assignments remain open (no end/close date) after zeros have been entered in the Blackboard Grade Center, students could complete the assignments in the Connect For Education site and the grade they receive will override the zero with an updated score.

Please also note, the grade sync process is unable to transmit grade values that exceed 100%. As a result, any course totals that exceed 100% (as a result of extra credit) will be transmitted to your Blackboard Grade Center as 100%.