

新型コロナウイルスパンデミック期間における語学教育研究センター全言語科目用の カスタム遠隔学習プラットフォームの設計及び開発について

Design and Development of a Custom Remote Learning Platform for All Language Courses at the Language Education and Research Center During the COVID-19 Pandemic

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概要:

新型コロナウイルスのまん延防止のため、語学教育研究センターが運営する大半の言語科目は、令和2年4月以降、主に遠隔形式で行われている。この突然の包括的な指導形態の変更を可能にするために、語学教育研究センターの Moodle 学習管理システム内のコースは、我々の言語教育のニーズに合わせて大幅にカスタマイズされた。本稿では、授業内容の投稿、学生の課題提出、学生の成績管理を容易にするために行った主なカスタマイズについて説明する。

Abstract:

In order help prevent the spread of COVID-19, most language courses administered by the Language Education and Research Center (LERC) have been primarily conducted in a remote format since April of 2020. To enable this sudden and comprehensive change in instructional format, a course within the LERC's Moodle learning management system was heavily customized to accommodate the needs of our language instruction. This paper describes the major customizations that were made to facilitate the posting of lesson content, the submission of student work, and the management of student grades.

キーワード: COVID-19、遠隔授業、Moodle、プラットフォーム設計

Keywords: COVID-19, remote learning, Moodle, platform customization

1 Introduction

The first wave of the COVID-19 pandemic struck Japan in January of 2020. Fukuoka saw its first case in mid-February, and by late March it became impossible to ignore the possibility that university classes might have to be held online. At the time, the Language Education and Research Center (LERC) lacked an online platform dedicated to remote learning. Luckily, we did

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have a robust Moodle-based e-learning platform (LERC Language Lab; <https://spotline.ip.kyusan-u.ac.jp>) which we rapidly customized to meet the instructional needs of all KSU language courses. After one and a half years of use and numerous customizations, our remote learning platform is currently (as of September 2021) used by over 200 teachers of 6 languages to teach up to 700 courses in any given semester to some 6,000 students. This paper describes the platform and its customizations in three sections: a) needs assessment, b) lessons and assignments, and c) checking and grading.

2 Needs assessment

Ready-to-use remote learning platforms with administrative oversight and support remain exceedingly rare at medium to large Japanese universities like Kyushu Sangyo University, and anecdotal evidence from various online communities suggests that our university may be the only one in Japan that provides a comprehensive system that caters specifically to the needs of language education. It was clear from the outset that the platform should ideally include the following capabilities:

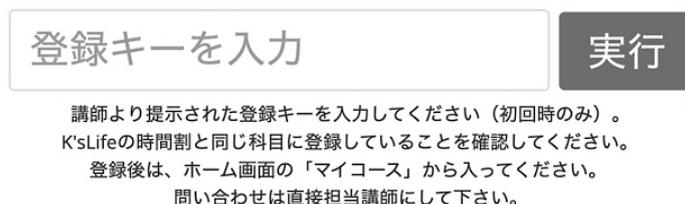
1. Full administrative oversight and control to allow the LERC to effectively provide support to both teachers and students
2. Assignment submission in the form of text, images, audio, and video
3. Display of submitted assignments on a single screen without the need to download files locally
4. Grading and feedback to submitted assignments on that same screen
5. Grade management from a central dashboard-like gradebook

In order to allow for administrative oversight, all language courses were added to a single Moodle course as separate groups (a capability native to Moodle). This format has allowed LERC staff and the Moodle administrator to access all content posted by both teachers and students, which has proven invaluable to the quality of support that we have been able to provide. All of the customizations described in the following sections were made within this single Moodle course, which we named *gaikokugo kamoku no kadai toukou* (外国語科目の課題投稿), or “homework submission for language courses”.

3 Lessons and assignments

In order to use the system, students are required to first input a unique six-digit registration key which is sent to them by their teacher via K's Life prior to the commencement of classes (Figure 1). This registration system relies on the Easy Enrollments plugin, initially developed for the Fordson Moodle theme (https://moodle.org/plugins/enrol_easy). (For further explanation of

this and other features, refer to Bovee, 2018.)



登録キーを入力

実行

講師より提示された登録キーを入力してください（初回時のみ）。
K'sLifeの時間割と同じ科目に登録していることを確認してください。
登録後は、ホーム画面の「マイコース」から入ってください。
問い合わせは直接担当講師にしてください。

Figure 1. Registration key input field

Upon entering the Moodle course, all users are presented with a large red button labelled “課題一覧 / Assignments” (Figure 2).



Figure 2. Top screen of the remote learning course

Clicking this red button opens an announcements forum, where users select a language course from a dropdown menu. The lessons posted in that course by its teacher (discussions within the forum) are then listed on the screen in reverse chronological order (Figure 3).

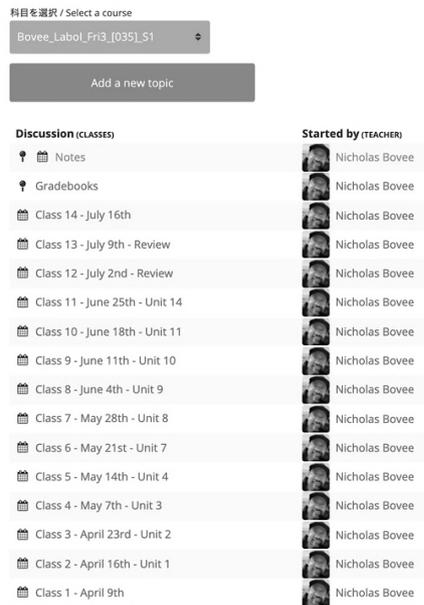


Figure 3. List of lessons within a single course

Teachers can set these individual lessons to be hidden from students until a specified date and time (Figure 4).

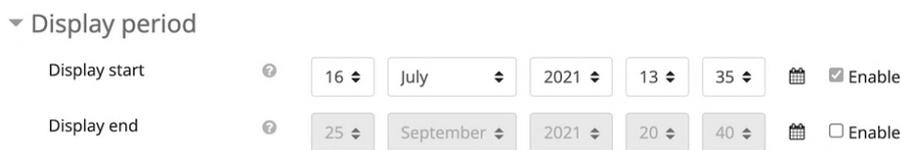


Figure 4. Display start and end settings for a lesson

A total of 84 empty Q&A forum discussions are pre-made by the Moodle administrator before the start of each 14-week semester. These forums are the places where students submit all of their assignments as text, images, audio recordings, or videos. They are divided into six sets of forums (A to F), each containing 14 separate forums labelled sequentially as Homework A1 to Homework A14, Homework B1 to Homework B14, and so on. Grades are kept organized over the semester by having students post to a forum in column 1 in the first week (e.g., Homework A1, Homework B1, etc.), to a forum in column 2 in the second week, and so on until week 14, the final week of the semester. Teachers link to these forums within the body of their lesson content by simply including the name of the forum (e.g., Homework A1) (Figure 5). The activity names auto-linking filter in Moodle automatically converts the forum names into hyperlinks upon posting the lesson.

Students who click these links are taken to the appropriate homework forums to which they may submit their work.

Homework B5: Unit 4 (p.20-21) (上記のビデオで説明した部分の写真を撮って投稿する。)

Homework (due on May 21st)

1. **Homework A5:** Unit 7 vocabulary (We will skip units 5&6! Unit 5と6を飛ばします!)
 - Quizlet: translations
 - Quizlet: cloze (sentences)
2. **Unit 4 Mini-test**

Figure 5. Auto linking to homework forums within a lesson

Note: Homework B5 and Homework A5 are Moodle auto-links.

Within each homework forum, students are presented with a text input field along with a rich-text editor (the Atto toolbar) (Figure 6). Within the toolbar are two buttons which are non-native to Moodle: one with a microphone icon, and the other with a video camera icon. These buttons, added by the Cloud PoodLL plugin (<https://poodll.com/plugin-cloudpoodll-atto>), activate audio and videorecording functions that work within the web browser on both PCs and smartphones (Figure 7). Files are saved in cloud storage, preserving server-side storage space for other file types (primarily handwritten work in the form of images submitted as attachments to forum posts).

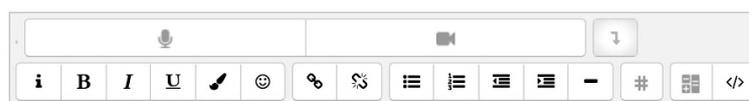


Figure 6. Atto toolbar

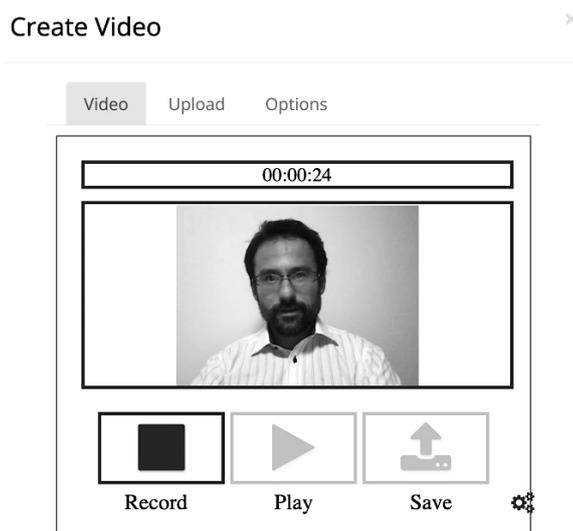


Figure 7. In-browser video recording with Cloud PoodLL

Forums were chosen as the sole activity type for the Moodle course for their versatility and ease of use. Within the Moodle remote learning course, the 84 pre-made discussion forums are the only spaces to which students are able to submit their work. This single-activity format simplifies the user interface for both teachers and students, many of whom are lacking in basic computer skills. Moreover, unlike Moodle's assignment activity (which may seem like a more logical option for assignment submission), forums allow for social learning activities through threaded discussions.

The format also allows teachers to easily check student work on a single screen without having to download files, a feature that has proven to substantially reduce teacher workload. Described in the following section is the process by which teachers check and grade student submissions.

4 Checking and grading: homework forums

The most substantial additions to the Moodle remote learning course are the checking and grading functions that were custom coded by the coauthor of this paper, Nicolas May, over several months of consultation and beta testing. The features described in sections 4 and 5 are non-native to a standard Moodle installation and are currently unavailable to the Moodle community. All custom-made user interface items, including tooltips, have been fully localized in Japanese, and can be toggled using the Moodle language menu (see the Appendix for examples).

4.1 Grading posts

Teachers check student-submitted content by scrolling through homework submission posts and individually grading (rating) them using a dropdown menu that displays the most commonly used grades at the top (Figure 8).

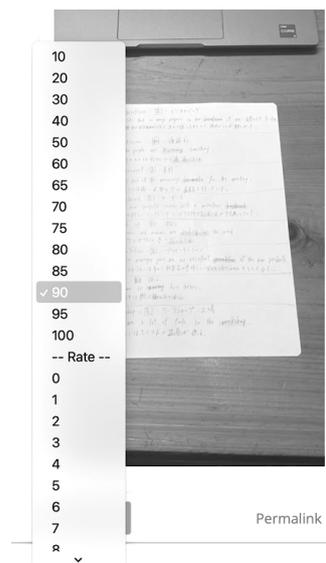


Figure 8. Simplified dropdown menu for grading student submissions

4.2 Image handling

Text, audio, and video submissions are displayed within the forum text input field. Handwritten work (e.g., textbook work) is submitted as attachments. These attachments display horizontally below the other media types, and enlarge to fill the screen when clicked. Images that were inadvertently submitted sideways or upside down can be rotated in the browser when enlarged via an icon in the upper-right corner of the screen (Figure 9).

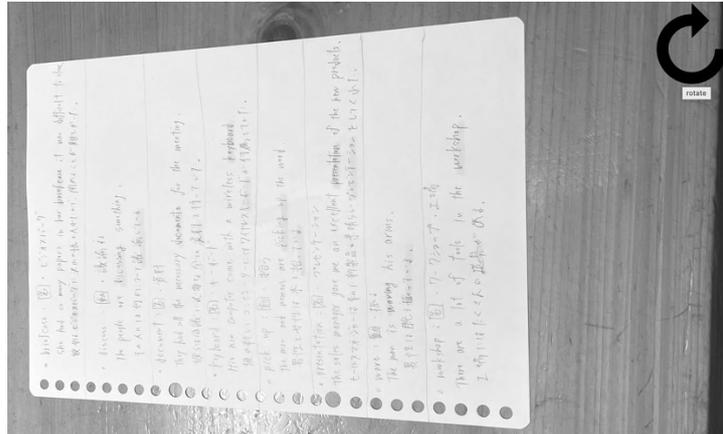


Figure 9. Image rotation of an enlarged image

Additionally, a “lazy loading” script defers the loading of below-the-fold images. This helps speed up page loading, especially during peak Moodle use times.

4.3 Forum sidebar

A forum sidebar on the right side of the screen provides teachers with numerous functions to assist in grading student submissions (Figure 10). The names of students who have submitted homework to the forum are listed in the upper part of the sidebar along with a number and graphical representation of the number of posts they have made. Late posts are marked in pink. The vertical bar to the left of each name is orange when ungraded and turns green in real time upon grading. Clicking a name allows the teacher to jump directly to the posts made by that student. A list of students who have not posted to the forum is at the bottom of the sidebar. The arrows to the left of these names allow the teacher to send direct messages to students. Such arrows are also located to the left of names within the forum posts, allowing teachers to send messages more efficiently than with Moodle’s native interface.



Figure 10. Forum sidebar as it appears next to forum posts

The “set filter” link at the top of the sidebar allows the teacher to set a submission deadline for the forum (Figure 11). All posts made after the specified date and time are flagged with a pink color. Also at the top of the sidebar are some useful statistics about student submission to the forum along with buttons to toggle the display of posts: all posts (all posts in chronological order), replied (posts to which the teacher has replied), late (flagged posts submitted after the deadline), and unrated (posts not yet rated by the teacher).

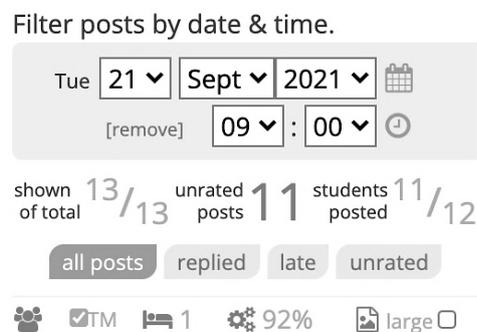


Figure 11. Setting submission deadlines with post filtering

By clicking preferences, teachers can toggle a number of items. Switch on privacy mode, which anonymizes student names, is particularly useful for online lessons when displaying submitted homework via screen sharing (Figure 12).

by  User 1 - Tuesday, 14 September 2021, 4:56 PM

User 1	2	
User 2	2	
User 3	1	
User 4	1	
User 5	1	
User 6	1	
User 7	1	
User 8	1	
User 9	1	
User 10	1	
User 11	1	

[help \[YouTube\]](#) [preferences](#)

 Open sidebar when page loads.

 Hide all posts on page load.

 Switch on privacy mode.

These settings apply to all 'Homework' forums viewed in this browser. You must reload the page for any changes to take effect.

 close

Figure 12. Privacy mode as it appears in a forum post header and in the sidebar

5 Checking and grading: gradebook

The gradebook was custom made to integrate with the homework submission forums. It functions as a central dashboard for keeping track of student progress, grading, and controlling how the forums function. All of the grades from homework submission forums A to F are displayed here for the teacher on a single screen (Figure 13). The 14 forums per forum set are labeled horizontally above each student, while the forum sets (A to F) are displayed vertically next to the students' names. Grades are color-coded (e.g., 100% is purple; 50% and under is red). Unsubmitted work is labeled "assigned", while posts that have yet to be graded are labeled "unrated". Clicking the submission time under a grade or an "unrated" link opens the associated forum post in a new browser tab.

Surname/First-name	ID	Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	% of assigned	% of final grade
Shigi		Homework A	100% Tue 2021/09/14, 10:20:17	[assigned]	-	-	-	-	-	-	-	-	-	-	-	-	50%	10%
Shigi		Homework B	100% Wed 2021/09/22, 08:38:04	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	20%
Shigi		Homework C	100% Wed 2021/09/15, 14:20:52	?	-	-	-	-	-	-	-	-	-	-	-	-	50%	10%
Shigi		Homework F	100% Tue 2021/09/14, 09:39:54	50% Tue 2021/09/21, 08:59:53	-	-	-	-	-	-	-	-	-	-	-	-	75%	0%
Surname/First-name	ID	Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	% of assigned	% of final grade
Hama		Homework A	100% Tue 2021/09/14, 10:56:55	0% Sun 2021/09/26, 01:45:46	-	-	-	-	-	-	-	-	-	-	-	-	50%	10%
Hama		Homework B	100% Sun 2021/09/13, 19:59:40	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	20%
Hama		Homework C	100% Wed 2021/09/15, 23:55:12	?	-	-	-	-	-	-	-	-	-	-	-	-	50%	10%
Hama		Homework F	100% Tue 2021/09/14, 09:39:51	100% Tue 2021/09/21, 09:02:14	-	-	-	-	-	-	-	-	-	-	-	-	100%	0%

Figure 13. Gradebook screen for the remote learning course

Clicking a forum number collapses the table to display only the grades for that week (Figure 14). Clicking it again expands the table to its full size.

Surname/First-name	ID	Category	2	% of final grade
Shigi		Homework A	[assigned]	10%
Shigi		Homework B	-	20%
Shigi		Homework C	? unrated	10%
Shigi		Homework F	50% Tue 2021/09/21, 08:59:53	0%
Surname/First-name	ID	Category	2	% of final grade
Hama		Homework A	0% Sun 2021/09/26, 01:45:46	10%
Hama		Homework B	-	20%
Hama		Homework C	? unrated	10%
Hama		Homework F	100% Tue 2021/09/21, 09:02:14	0%

Figure 14. Gradebook collapsed to display grades for a single week

A number of options are located above the grades section (Figure 15). The unselected forum series to the right of “Show/Hide” are not displayed in the gradebook. This allows teachers to hide forums that are not used in their class. In the following example, Homework A might be dedicated to vocabulary tasks, Homework B might be used for speaking, Homework C might be used for

textbook work, and Homework F might be used for taking attendance. Homework D and E are hidden from view, perhaps because they are not used in the course. The rightmost option of “Has Posted” adds a row for each student that contains a checkmark if the student has submitted anything in any forum of the same number. For example, a student who has submitted work to any forum from Homework A1 to F1 will have a checkmark in column 1 (see image 2 in the Appendix.)

Five links are located underneath these checkboxes (Figure 15). Search allows the teacher to filter the displayed students by the first letter of either their first or last name. Set grade breakdown sets the value of a course element within the final grade. For example, if Homework A is dedicated to vocabulary work that is worth 20% of the final grade, the teacher selects 20% for Homework A and the totals are calculated in the rightmost column of the grades table (Figure 13). Exclude assignments allows teachers to exclude specific forums from the grade calculations. For example, even if Homework A is dedicated to vocabulary work, Homework A1 may have been an ungraded activity such as self-introductions. Restrict post visibility allows the teacher to make specific forums “nonsocial” so that students are only able to view their own posts, their teacher’s replies to their posts, and their teacher’s initial posts directed at all students in the class. Normally, as is desirable in a Moodle Q&A forum, students cannot see other students’ posts until they have made a post of their own. A forum discussion with restricted visibility makes it more like a Moodle assignment activity wherein student submissions are kept private from the other students. Finally, Export allows the teacher to export any or all of their grades as a CSV file.

Bovee_4SI_Tue1 • Wed1_[011]_S2

Select a course

Bovee_4SI_Tue1 • Wed1_[011]_S2 ▾ [Students: 24] » View Assignments «

Show/Hide: Homework A Homework B Homework C Homework D Homework E Homework F Has Posted

Search Set grade breakdown Exclude Assignments Restrict Post Visibility Export English 日本語

Figure 15. Various gradebook options

The gradebook is displayed to students in a format compatible with smartphones in portrait orientation (Figure 16). In this view, the forums (1 to 14) and grades for an individual student are arranged vertically, with the forum series in use by the teacher (A to F) listed horizontally across the top. As in the teacher’s gradebook, clicking a date and time link opens the associated post in a new browser tab.

Displayed above the table of grades is a list of replies that have been posted to the student within a forum. Clicking these links will also open the associated post in a new browser tab. Clicking “Mark read” on the forum post itself will cause the notice to disappear from the gradebook. This

feature is useful not only for viewing teacher feedback on posted assignments, but also for keeping track of social learning activities that require students to engage in conversations within forums.

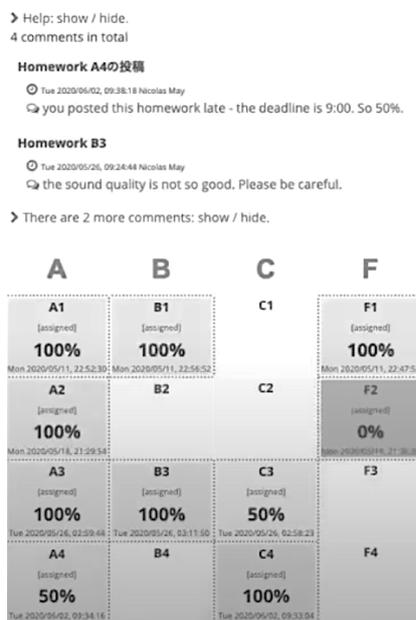


Figure 16. Student view of the gradebook

6 Future directions

In the 2020 academic year, all English language courses were delivered in an asynchronous, video on demand format that required students to engage with prerecorded lesson videos at some point during the week, but not necessarily during their scheduled class times. This format resulted in an unusually high attrition rate, most likely due to the fact that the open-ended nature of the schedule provided insufficient structure to the students' weekly study routine. From 2021, we switched to a synchronous instructional format wherein lessons are conducted in real time via Zoom. Students clearly prefer this approach as demonstrated by the fact that the failure rate in the first semester of 2021 was halved in comparison to that of one year prior.

No one knows whether we will welcome a full return to face-to-face lessons in 2022 or whether we will continue teaching in remote and hybrid formats to some degree. However, it is evident that many teachers now prefer to use an online system for collecting and grading homework, regardless of the instructional format. At the LERC, we strive to make the best of whatever situation we face, and in order to prepare for the challenges that lie ahead, we are preparing to upgrade to Moodle 4.0 for the 2022 academic year. This will be the largest Moodle upgrade we have made in five years, and we are planning to make the necessary changes “under the hood” to our remote learning platform so that it will remain usable for years to come.

References

Bovee, N. (2018). New e-learning functionality in the LERC Language Lab Moodle LMS. *Common (Kyushu Sangyo University Computing and Networking Center Journal)*, 38, 80-89.

Appendix: Examples of the Japanese language user interface

日時で投稿を絞り込む

火曜日 2021年 9月 21日 
 [解除する] 09:00 

表示 13/13 未評価 11 投稿した 11/12
件数 投稿数 学生数



 1
  92%
  画像拡大

1. Forum sidebar options

性/名	学籍番号	カテゴリ	15 ^[1]	16 ^[2]	17 ^[3]	18 ^[4]	19 ^[5]	20 ^[6]	21 ^[7]	22 ^[8]	23 ^[9]	24 ^[10]	25 ^[11]	26 ^[12]	27 ^[13]	28 ^[14]	合計パーセン ト (与えた課 題の内)	総合評価の割 合での得点
 Shigi		Homework A	100% Tue 2021/09/14, 10:20:17 <small>(課題指示有)</small>	-	-	-	-	-	-	-	-	-	-	-	-	-	50%	10%
 Shigi		Homework C	100% Wed 2021/09/15, 14:20:52	? <small>未評価</small>	-	-	-	-	-	-	-	-	-	-	-	-	50%	10%
 Shigi		Homework F	100% Tue 2021/09/14, 09:39:54	50% Tue 2021/09/21, 08:59:53	-	-	-	-	-	-	-	-	-	-	-	-	75%	0%
 Shigi		投稿あり	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-		

2. Gradebook (teacher's view of second semester forums)

表示/非表示: Homework A Homework B Homework C Homework D Homework E Homework F 投稿あり

English 日本語

「総合評価の割合での得点」におけるこのコース要素の値を選択します。例: 教科書の宿題にHomework Cを使用し、教科書の宿題が最終評点の20%を占める場合、Homework Cを20%に設定します。その後Homework Cで採点したどのような課題であっても、たとえ7のような奇数を割り当てたとしても、その20%の要素として学生の評点を与えます。クラスごとに異なる値を設定することができます。注意: これらの設定は、このコンピュータのウェブブラウザに保存されています。別のコンピュータ/ブラウザに移動した場合、リセットする必要があります。ここで変更した内容は学生に与えた実際の評価には影響しません。

Homework A
 Homework B
 Homework C
 Homework D
 Homework E
 Homework F

3. Gradebook settings

Bovee_4SI_Tue1・Wed1_[011]_S2

科目を選択

Bovee_4SI_Tue1・Wed1_[011]_S2 ▾ » 課題一覧を見る ‹‹

📄 21KK030



▼ ヘルプ表示 / 非表示

ヘルプ: こちらの投稿をフォーラムで見るためにはリンクをクリックしてください。
投稿の「既読にする」をクリックすると、このページから消えます。

1つのコメントがあります。

Homework C15の投稿

🕒 Sun 2021/09/26, 12:50:21 Nagata Hirayuki
👍 I like K-POP IDOL too.Nice picture!

A	B	C	D	E	F
A15 [課題指示有] 100% Tue 2021/09/14, 10:20:17	B15 [課題指示有] 100% Wed 2021/09/23, 08:38:04	C15 [課題指示有] 100% Wed 2021/09/15, 14:20:52	D15 [課題指示有] 投稿済	E15 [課題指示有] 100% Tue 2021/09/14, 16:10:35	F15 [課題指示有] 100% Tue 2021/09/14, 09:39:54
A16 [課題指示有]	B16	C16 [課題指示有] 投稿済	D16 [課題指示有]	E16	F16 [課題指示有] 50% Tue 2021/09/21, 08:55:53
A17	B17	C17	D17	E17	F17
A18	B18	C18	D18	E18	F18

4. Gradebook (student's view)