How Purdue University has Benefited from the Use of UniTime and Open Source Practices

Stephanie Schluttenhofer

OPEN APEREO 2022

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Benefits

- Adaptability from Open Source Processes and Dialogue
- Availability of UniTime Data for Planning
- Cost Savings from Better Planning
- Ease of UniTime Integration with Other Systems
- Result: Improved Performance in the Fundamental University Mission - Educating the Students

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Adaptability

Open Source Processes Encourage Dialogue and Innovation

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Adaptability

My Observations of Traditional Software Vendors:

- Users learn the software
- Users use the software
- Users report bugs
- Unless critical, users wait for bug fixes
- Users request additional features
- Users wait for upgrades, often years
- Users are disengaged
- Traditional software becomes stale

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Adaptability

My Observations of Open Source:

- Users learn the software
- Users ask, “Could the software do X?”
- Open source community says, “X is a great idea, with the data from X it can do Y?”
- Users get excited and ask, “Could it do Z as well?"
- The changes are implemented quickly
- Users are engaged
- Developers are engaged
- Engagement leads to more adaptability

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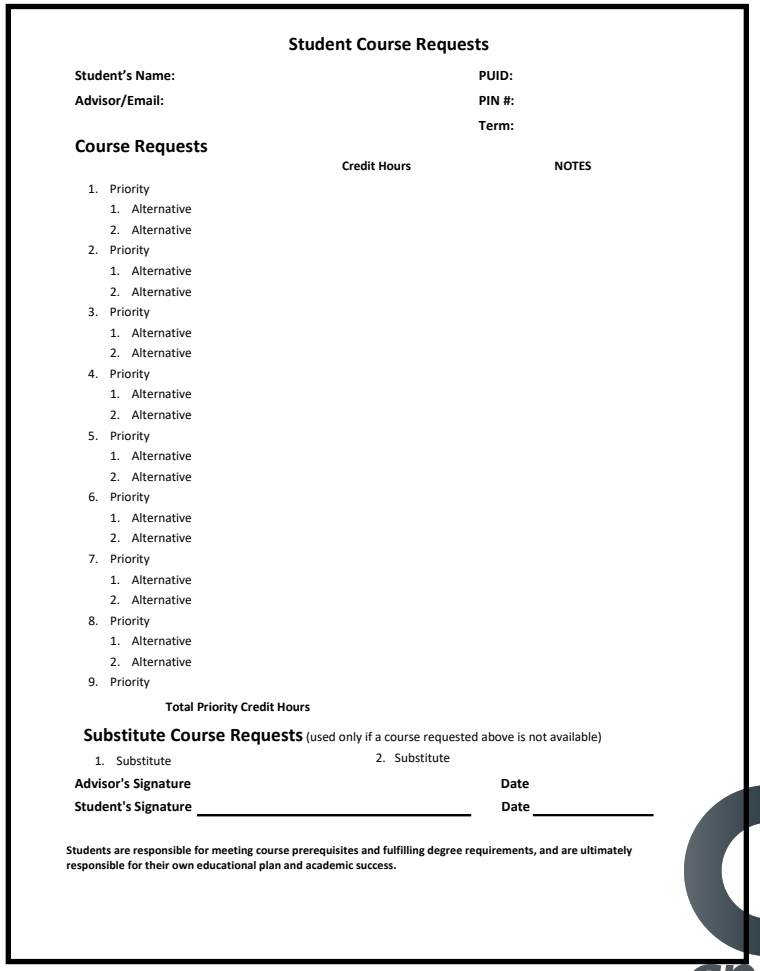
Adaptability - Case Study

Advisor Recommendation Form

Users Asked:

- Can UniTime replace the paper Student Course Requests form Advisors use to advise their students?
- Can it be saved as a PDF as proof of the advising conversation?
- Can the students access it in UniTime?



Student Course Requests

Student's Name: **PUID:**

Advisor/Email: **PIN #:**

Term:

Course Requests

Credit Hours **NOTES**

1. Priority
   1. Alternative
   2. Alternative
2. Priority
   1. Alternative
   2. Alternative
3. Priority
   1. Alternative
   2. Alternative
4. Priority
   1. Alternative
   2. Alternative
5. Priority
   1. Alternative
   2. Alternative
6. Priority
   1. Alternative
   2. Alternative
7. Priority
   1. Alternative
   2. Alternative
8. Priority
   1. Alternative
   2. Alternative
9. Priority

Total Priority Credit Hours

Substitute Course Requests (used only if a course requested above is not available)

1. Substitute 2. Substitute

Advisor's Signature **Date**

Student's Signature _____ **Date** _____

Students are responsible for meeting course prerequisites and fulfilling degree requirements, and are ultimately responsible for their own educational plan and academic success.

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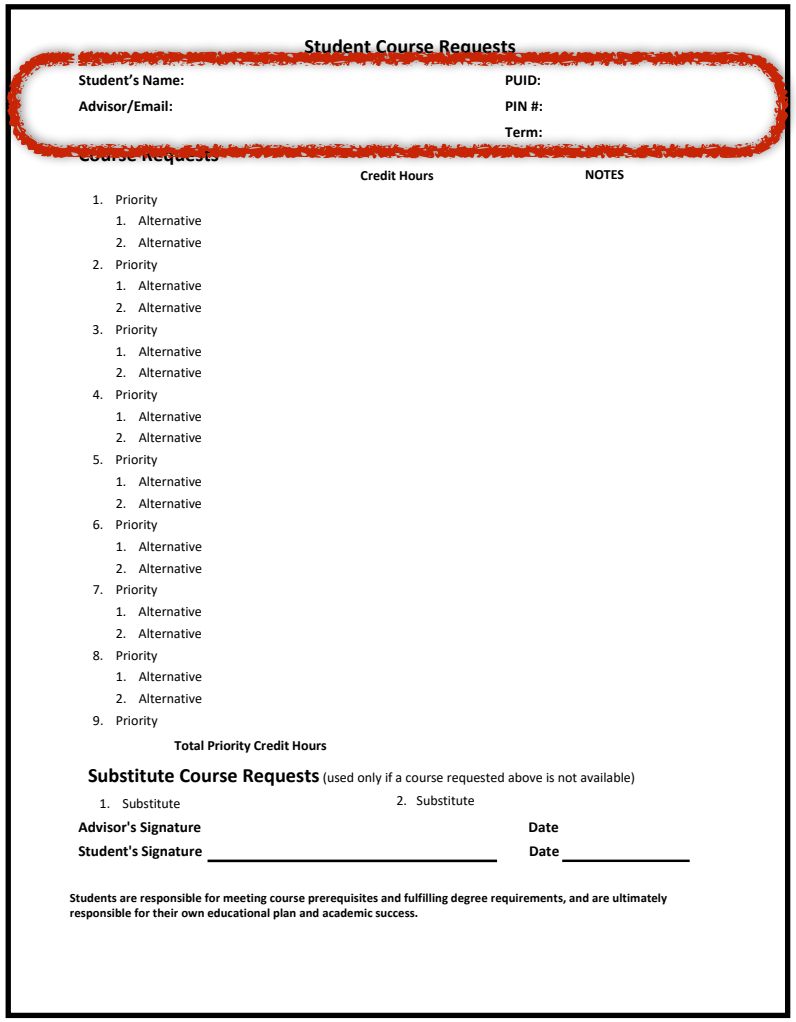
Adaptability - Case Study

Advisor Recommendation Form



Student Course Requests

Student's Name: PUID:

Advisor/Email: PIN #:

Term:

Course Requests Credit Hours NOTES

1. Priority
   1. Alternative
   2. Alternative
2. Priority
   1. Alternative
   2. Alternative
3. Priority
   1. Alternative
   2. Alternative
4. Priority
   1. Alternative
   2. Alternative
5. Priority
   1. Alternative
   2. Alternative
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   2. Alternative
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Total Priority Credit Hours

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Advisor's Signature Date

Student's Signature _____ Date _____

Students are responsible for meeting course prerequisites and fulfilling degree requirements, and are ultimately responsible for their own educational plan and academic success.

The student information header on the form was new, no old code to re-use.

Idea: The advisor could use the form to enable the student for registration.

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Adaptability - Case Study

Advisor Recommendation Form

Student Course Requests

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Course Requests **Credit Hours** **NOTES**

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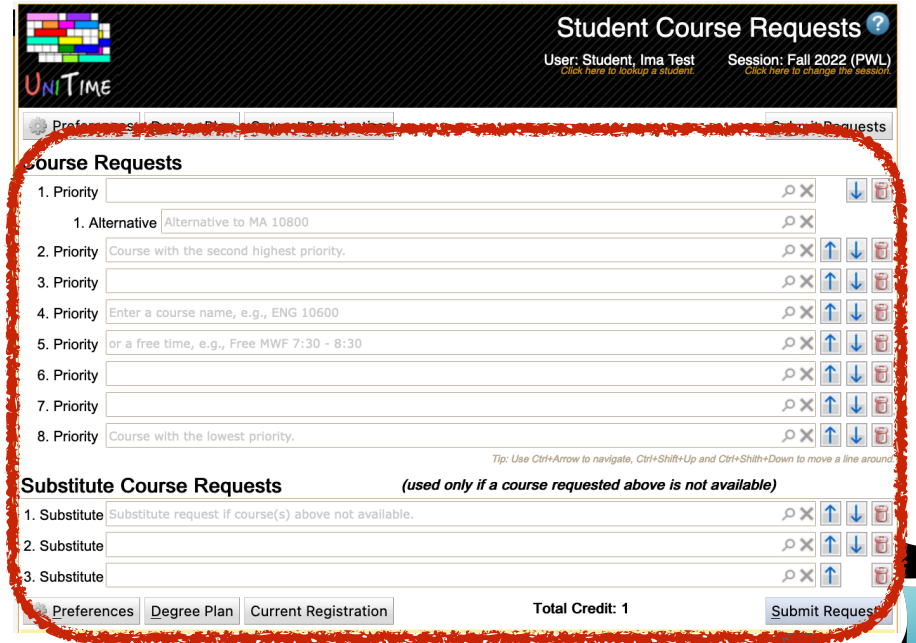
The Student Course Requests page uses similar data to paper form. Use this as a starting point.



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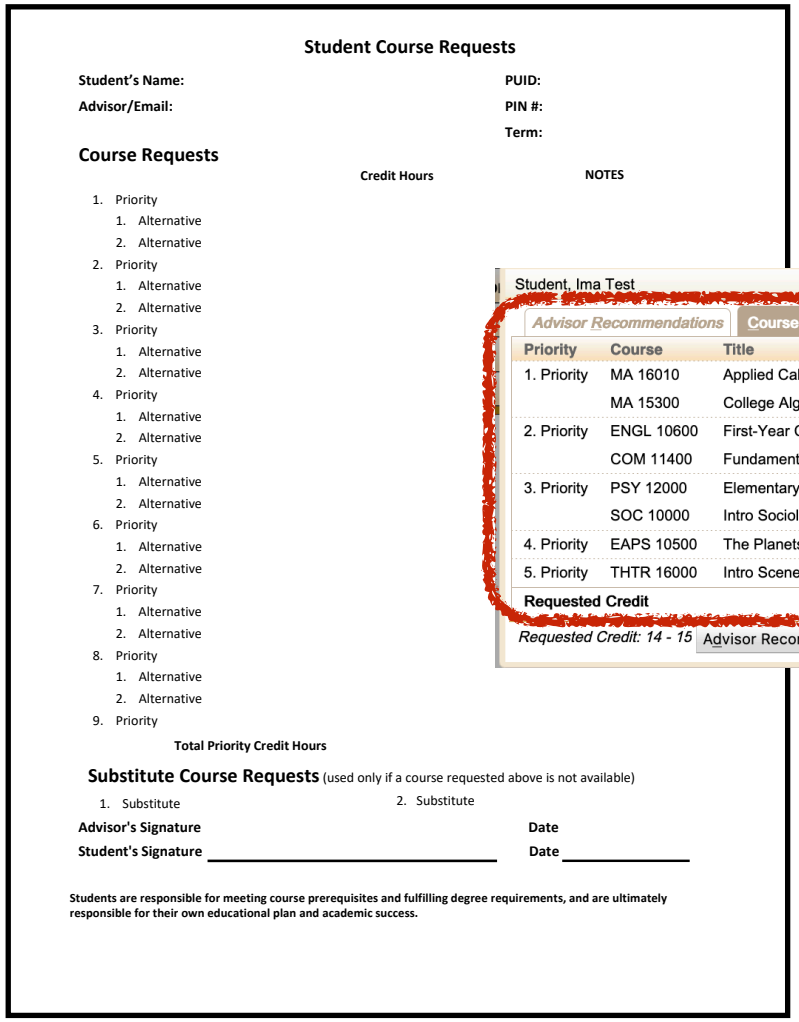
Advisor Recommendation Form



Student Course Requests

Student's Name: **PUID:**

Advisor/Email: **PIN #:**

Term:

Course Requests

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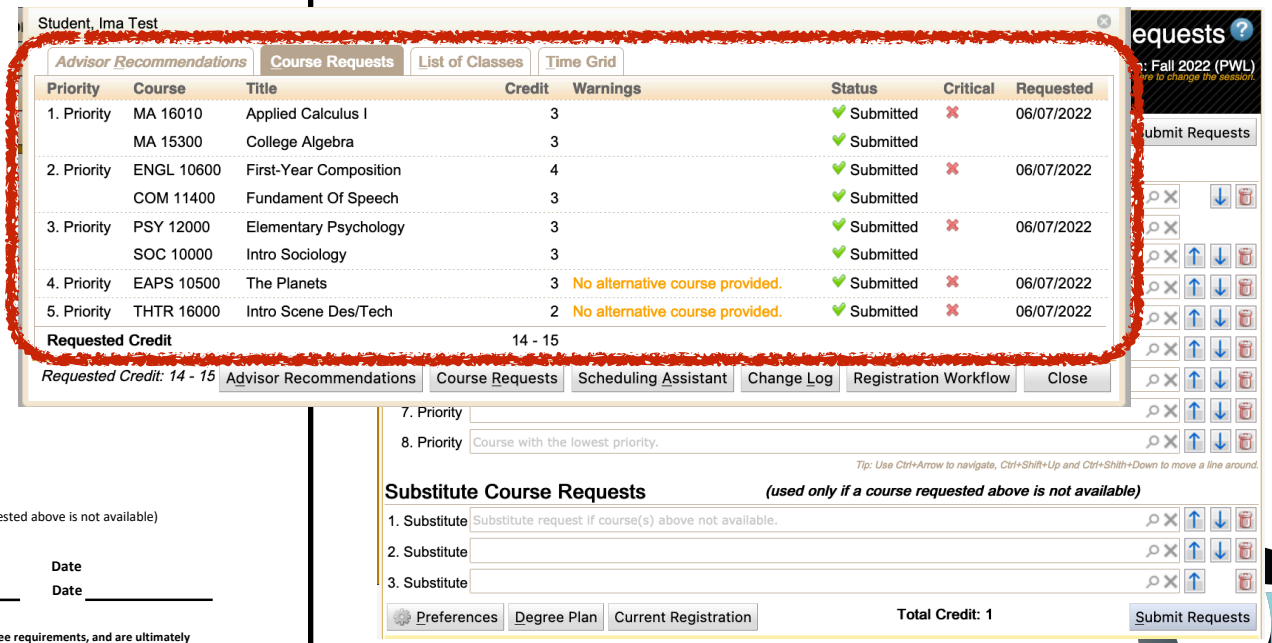

Student, Ima Test

Advisor Recommendations | Course Requests | List of Classes | Time Grid

Priority	Course	Title	Credit	Warnings	Status	Critical	Requested
1. Priority	MA 16010	Applied Calculus I	3		Submitted	✖	06/07/2022
	MA 15300	College Algebra	3		Submitted		
2. Priority	ENGL 10600	First-Year Composition	4		Submitted	✖	06/07/2022
	COM 11400	Fundament Of Speech	3		Submitted		
3. Priority	PSY 12000	Elementary Psychology	3		Submitted	✖	06/07/2022
	SOC 10000	Intro Sociology	3		Submitted		
4. Priority	EAPS 10500	The Planets	3	No alternative course provided.	Submitted	✖	06/07/2022
5. Priority	THTR 16000	Intro Scene Des/Tech	2	No alternative course provided.	Submitted	✖	06/07/2022
Requested Credit			14 - 15				

Requested Credit: 14 - 15 Advisor Recommendations | Course Requests | Scheduling Assistant | Change Log | Registration Workflow | Close

equests

: Fall 2022 (PWL)

ubmit Requests

7. Priority

8. Priority Course with the lowest priority.

Tip: Use Ctrl+Arrow to navigate, Ctrl+Shift+Up and Ctrl+Shift+Down to move a line around.

Substitute Course Requests *(used only if a course requested above is not available)*

1. Substitute Substitute request if course(s) above not available.
2. Substitute
3. Substitute

Preferences | Degree Plan | Current Registration **Total Credit: 1** Submit Requests

The original form doesn't show existing data for the student, advisors would likely find it useful.

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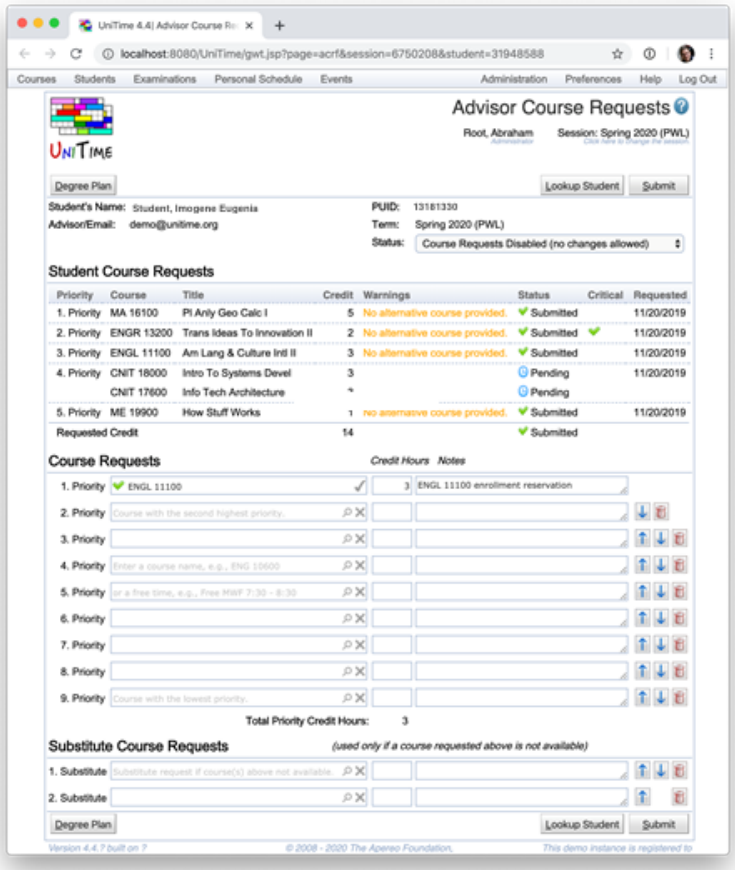
Adaptability - Case Study

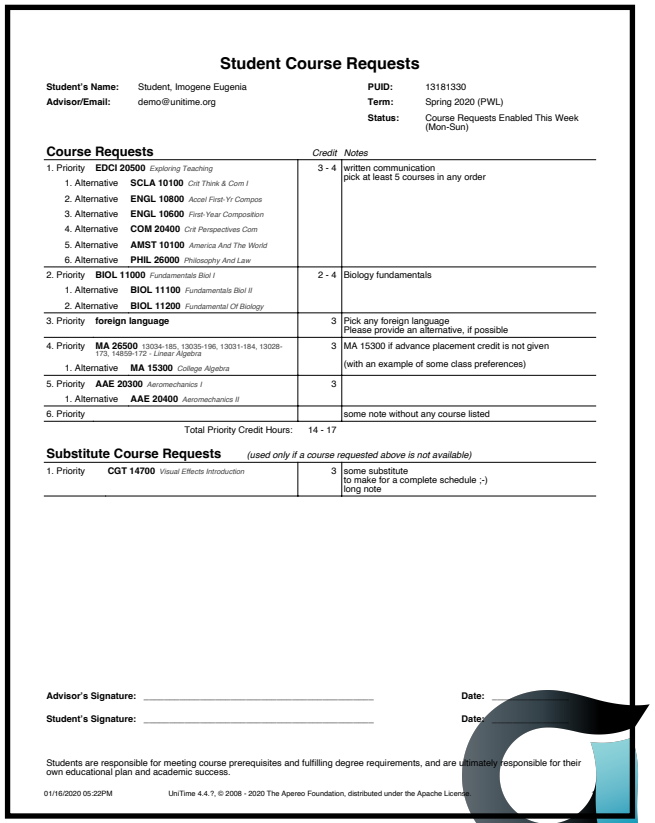
Advisor Recommendation Form



Proposed Solution Advisor

Online Form

Downloadable PDF



Student Course Requests

Student's Name: Student, Imogene Eugenia
Advisor/Email: demo@unitime.org
PUID: 13181330
Term: Spring 2020 (PWL)
Status: Course Requests Enabled This Week (Mon-Sun)

Course Requests	Credit	Notes
1. Priority **EDCI 20500** *Exploring Teaching*	3 - 4	written communication pick at least 5 courses in any order
1. Alternative **SCLA 10100** *Crit Think & Com I*		
2. Alternative **ENGL 10800** *Accel First-Yr Compos*		
3. Alternative **ENGL 10600** *First-Year Composition*		
4. Alternative **COM 20400** *Crit Perspectives Com*		
5. Alternative **AMST 10100** *America And The World*		
6. Alternative **PHIL 26000** *Philosophy And Law*		
2. Priority **BIOL 11000** *Fundamentals Biol I*	2 - 4	Biology fundamentals
1. Alternative **BIOL 11100** *Fundamentals Biol II*		
2. Alternative **BIOL 11200** *Fundamental Of Biology*		
3. Priority **foreign language**	3	Pick any foreign language Please provide an alternative, if possible
4. Priority **MA 26500** 13034-185, 13035-196, 13031-184, 13028-173, 14859-172 - *Linear Algebra*	3	MA 15300 if advance placement credit is not given
1. Alternative **MA 15300** *College Algebra*		(with an example of some class preferences)
5. Priority **AAE 20300** *Aeromechanics I*	3	
1. Alternative **AAE 20400** *Aeromechanics II*		
6. Priority		some note without any course listed
Total Priority Credit Hours:	14 - 17	

Substitute Course Requests *(used only if a course requested above is not available)*

1. Priority **CGT 14700** *Visual Effects Introduction*	3	some substitute to make for a complete schedule ;-) long note

Advisor's Signature: _____ **Date:** _____
Student's Signature: _____ **Date:** _____

Students are responsible for meeting course prerequisites and fulfilling degree requirements, and are ultimately responsible for their own educational plan and academic success.

01/16/2020 05:22PM UniTime 4.4.7, © 2008 - 2020 The Apereo Foundation, distributed under the Apache License.

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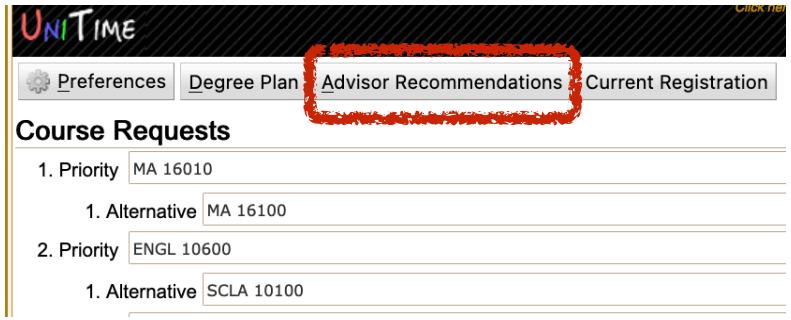
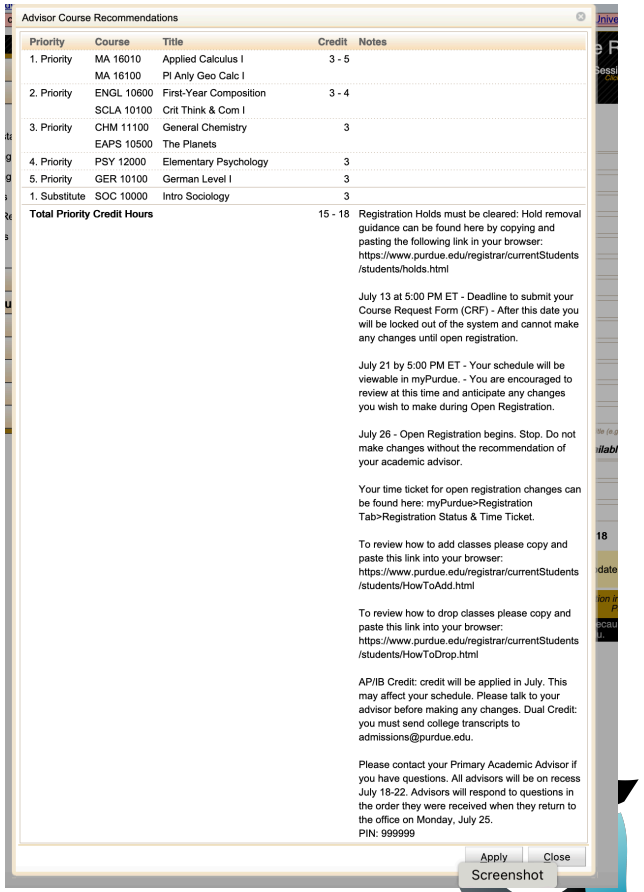
Advisor Recommendation Form

Proposed Solution Student



Button to View Form

Display Form In Pop-up



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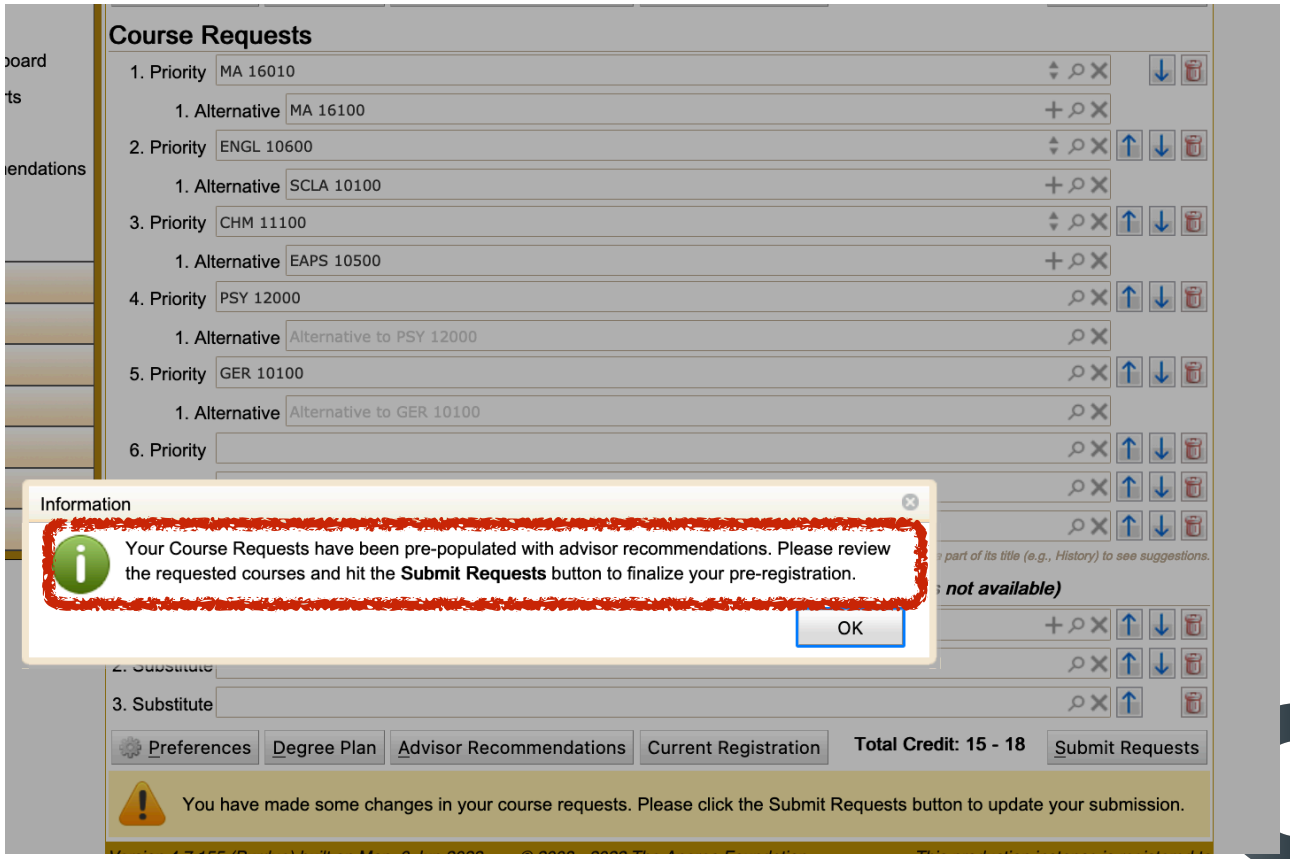
Advisor Recommendation Form

Additional Solution Idea for Student

Pre-Populate Course Requests



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Advisor Recommendation Form

Less than 3 months from idea to implementation

- Project requested on December 19, 2019
- Multiple rounds of feedback
- Advisors Tested / Trained in February 2020
- In Production on March 14, 2020

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Adaptability - Case Study

Advisor Recommendation Form

Phenomenally High Usage Among Advisors

- COVID hit
  - Advising went online
  - The form facilitated online communication
- Advisors are engaged
  - Regularly suggest improvements
  - Suggestions are often implemented
  - Suggestions are often expanded upon
- Fall 2022 - Used for all but 50 continuing students

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Adaptability - Case Study

Advisor Recommendation Form

Watch my Lightning Talk to see the Advisor Recommendation Form in Action:

Streamlining Student Advising - The UniTime Advisor Recommendation Form

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Data for Planning

UniTime has Useful Data for Planning

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Data for Planning - Short Term

Curricula Data, Enrollment Data, Student Requests

This UniTime Data Helps Users Predict:

- Courses that have joint demand. — make sure these don't conflict
- Which courses are expected to have increased demand. — offer more seats
- Which courses are expected to have decreased demand. — offer fewer seats

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Data for Planning - Short Term

Weekly Student Contact Hours, Weekly Hours of Facility Usage

Allow UniTime to Help Users Predict:

- The types of rooms a department needs for their classes
- The number of rooms a department needs for their classes

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Data for Planning - Long Term

Weekly Student Contact Hours, Weekly Hours of Facility Usage

Allow UniTime to Help Users Predict:

- The types of classrooms / labs / etc. that need to be built in the future.
- The timeframe in which new classrooms / labs / etc. need to come online.
- Where on campus new classrooms / labs / etc. should be built.

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Data for Planning - Very Long Term

Course Demand + Room Utilization in Simulations

Purdue has used UniTime to run simulations of the long term future.

- Put together its dream student body for 10 years into the future.
- UniTime projected this onto the current student body to generate course demands of this future dream student body.
- Users familiar with Purdue's programs then took their best guess at how the growth / shrinkage of demand for courses would be handled.

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Data for Planning - Very Long Term

Course Demand + Room Utilization in Simulations

A Simulated Course Timetable was Created.

- Added course sections where determined
- Increased course section size where determined
- Shrank courses where determined
- Removed rooms in buildings slated to be torn down
- Added rooms expected to be built
- Added rooms that weren't planned but were needed to schedule all classes in the simulated timetable.
- Simulated future students were scheduled to the timetable to ensure it was a usable timetable

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Data for Planning - Very Long Term

Course Demand + Room Utilization in Simulations

The Simulated Course Timetable was Analyzed

- Which departments would need additional staff to support their growth
- Which departments could be expected to shrink
- Whether planned rooms matched what was needed

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Cost Savings

Improved Planning leads to Cost Savings

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Cost Savings

Purdue

Purdue benefits from cost savings thanks to better planning

- Offering the right classes, at the right capacity, at the right time
- Knowing where to focus resources in faculty hiring
- Knowing what types of spaces to build and where
- Knowing what types of spaces **not** to build

All of the above can lead to cost savings by avoiding wasteful spending on unneeded resources.

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Cost Savings

Students

Students benefit from better planning

- Improved planning interactions with their advisors
- Able to get the courses they need to graduate on time
- Cost savings are passed on to the student

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Integration

UniTime's Open Source Foundations Allow for Easy Integration

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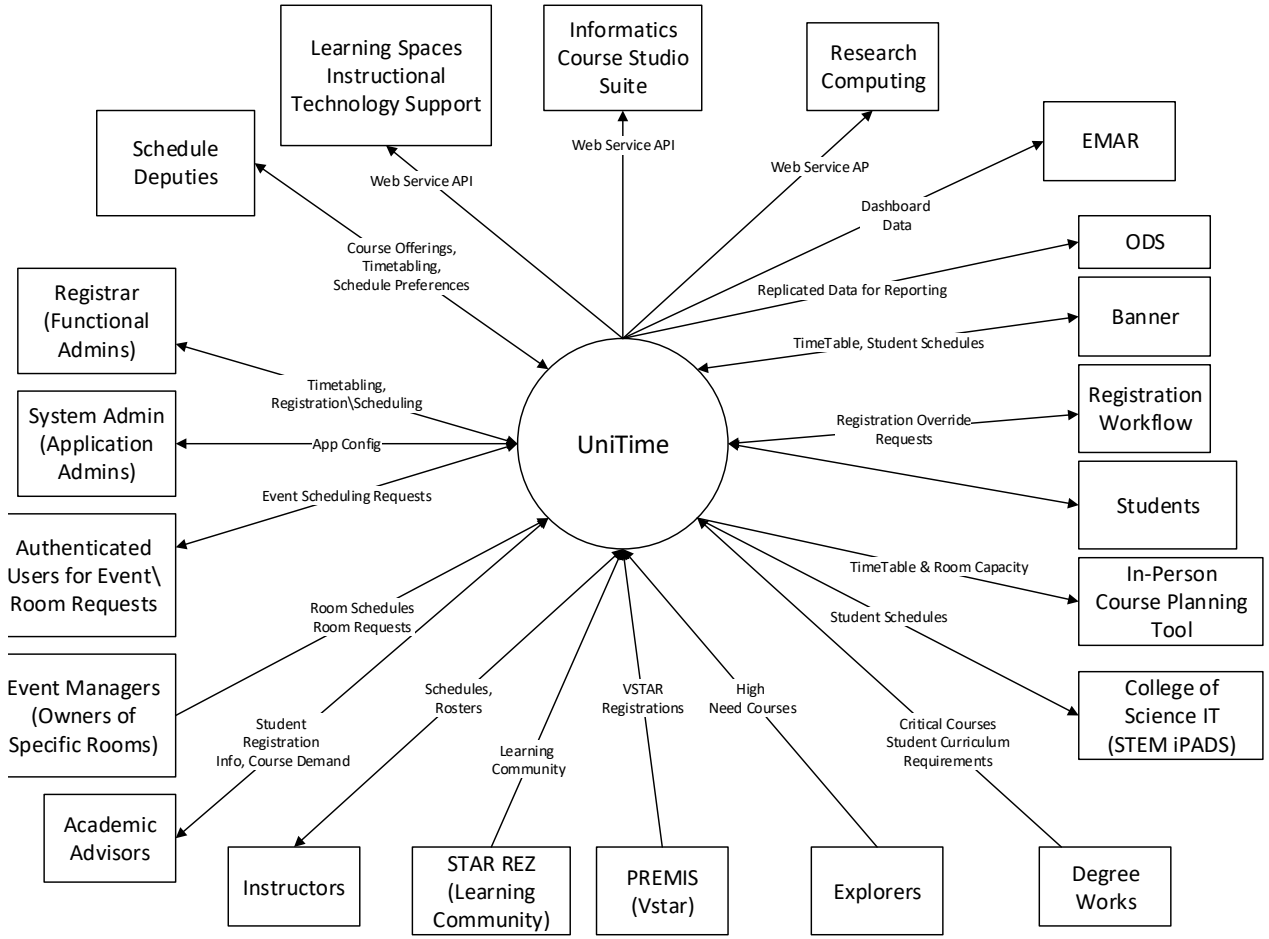
Integration

Purdue has Integrated UniTime with Many Systems



Updated 9/30/20

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Benefit: Improved Performance

Improved Performance in the Fundamental University Mission of Educating the Students

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Benefit: Improved Performance

Fundamental University Mission of Educating the Students

To get an education students must be able to get the courses they need.

- Improved hand off of advising information encourages student to stay on track to meet their goals.
- Improved planning allows Purdue to do a better job of meeting student needs in a more affordable manor.

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Benefit: Improved Performance

Fundamental University Mission of Educating the Students

Additionally, UniTime is geared toward getting students the courses they need.

- UniTime provides tools to allow Purdue and other institutions to see when they are not meeting a student's needs.
- Identifying the individual students affected by poor course planning encourages better course planning.
  - Has this made Purdue perfect at meeting student needs? No, far from it.
  - Does Purdue have the tools needed to improve? **Yes!**
  - Is Purdue striving to improve? **Yes!**

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Conclusion

Open source practices have encouraged engagement with UniTime that has benefitted Purdue

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Conclusion

- Adaptability from Open Source Processes and Dialogue
- Availability of UniTime Data for Planning
- Cost Savings from Better Planning
- Ease of UniTime Integration with Other Systems
- Result: Improving Performance in the Fundamental University Mission - Educating the Students

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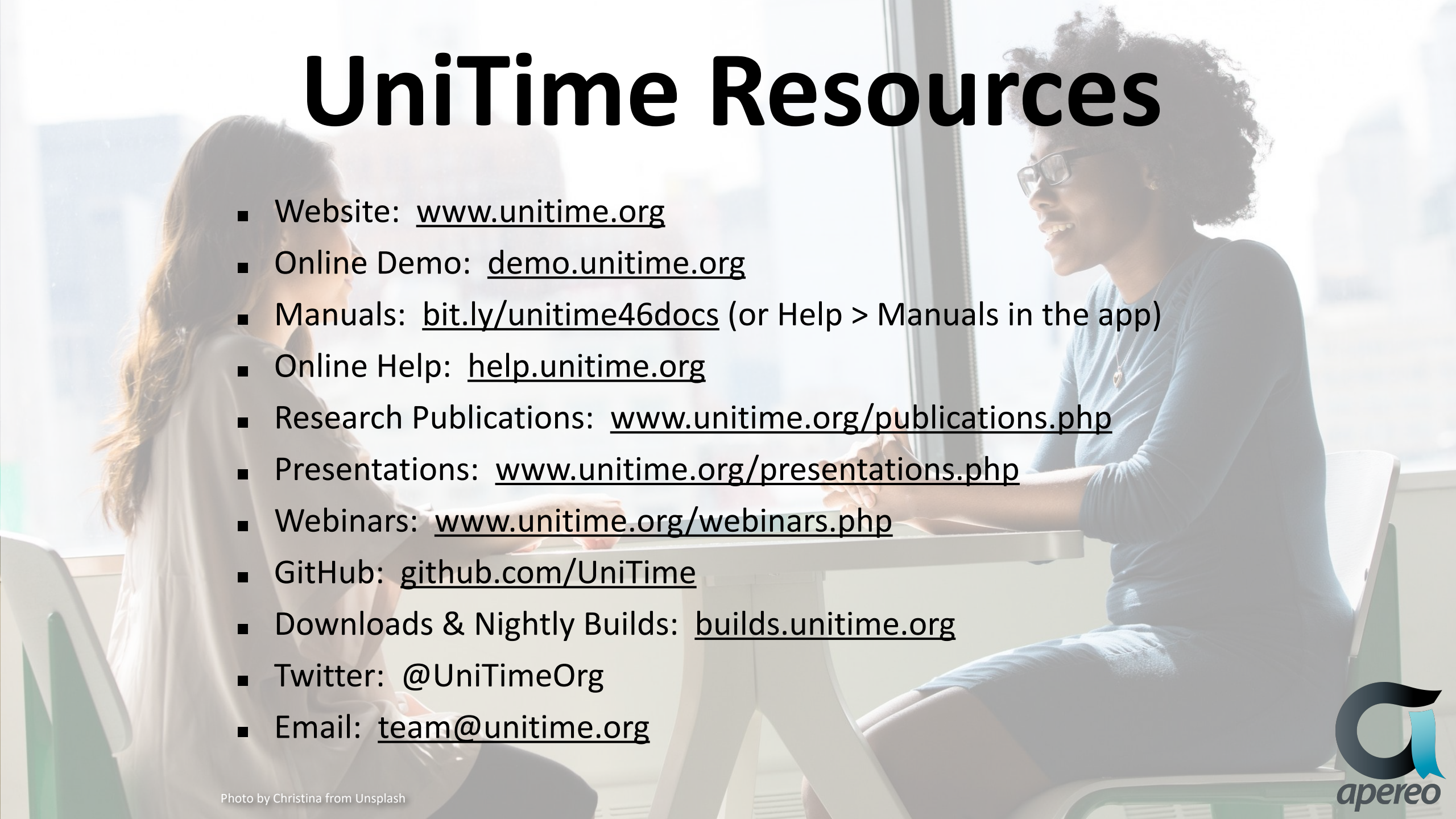
UniTime Resources

- Website: www.unitime.org
- Online Demo: demo.unitime.org
- Manuals: bit.ly/unitime46docs (or Help > Manuals in the app)
- Online Help: help.unitime.org
- Research Publications: www.unitime.org/publications.php
- Presentations: www.unitime.org/presentations.php
- Webinars: www.unitime.org/webinars.php
- GitHub: github.com/UniTime
- Downloads & Nightly Builds: builds.unitime.org
- Twitter: @UniTimeOrg
- Email: team@unitime.org



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Join the Conversation

Website: https://www.unitime.org

Email: team@unitime.org

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Thank You!

OPEN APEREO 2022

Stephanie Schluttenhofer

says@purdue.edu / says@unitime.org

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