



A Success Story: Using Embedded Course Advising to Disrupt Barriers in Foundational STEM Courses

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Agenda

- ❑ Overview the Intervention: Embedded Course Advising
- ❑ Embedded Course Advising Model
- ❑ Evidence of Success
- ❑ Applicability to Other HSI's
- ❑ Conclusion
- ❑ Q&A

Embedded Course Advising

SEMILLA HSI Grant Overview of Course Advising

STEM attrition can also be caused by non-academic factors, particularly, for marginalized students.

Students who feel isolated or underprepared can benefit from experienced counselors, personal support and a developmental relationship with a caring adviser.

(UCSC HSI SEMILLA Grant)

Embedded Course Advising

SEMILLA HSI Grant Overview of Course Advising

STEM counselors will partner with faculty in STEM foundation courses to implement **early alerts** to proactively seek out potential and emerging student barriers.

Integrating support into STEM courses **builds a bridge** for students who can benefit from support but might not know how to access resources on campus.

(UCSC HSI SEMILLA Grant)

Outcomes: SEMILLA Logic Model

Increase pass rates for STEM
foundational courses

Reduction in equity gap for STEM
foundational course work.

Embedded Course Advising Model & Effective Outreach Methods



Identify Foundational STEM Courses with Large Equity Gaps

- Large lecture classes
- Historical “gateway” classes for STEM majors
- Large non-pass rates



Create Partnership with Faculty & Offer Embedded Course Advising

- Reach out to faculty with resource you can offer their class
- Share embedded course advising model



Identify Target Population within Course Roster

- EOP status (first generation, low income)
- Latinx and/or URM



Create Outreach Strategy

- Introduction at first day of class
- With faculty permission, your resource to CANVAS/course page/syllabus
- Email outreach
- Text outreach



Holistic Advising Meetings (pre/post exams grades)

- Discuss academic and non academic barriers
- Discuss resources
- Time management, family responsibilities, study strategies



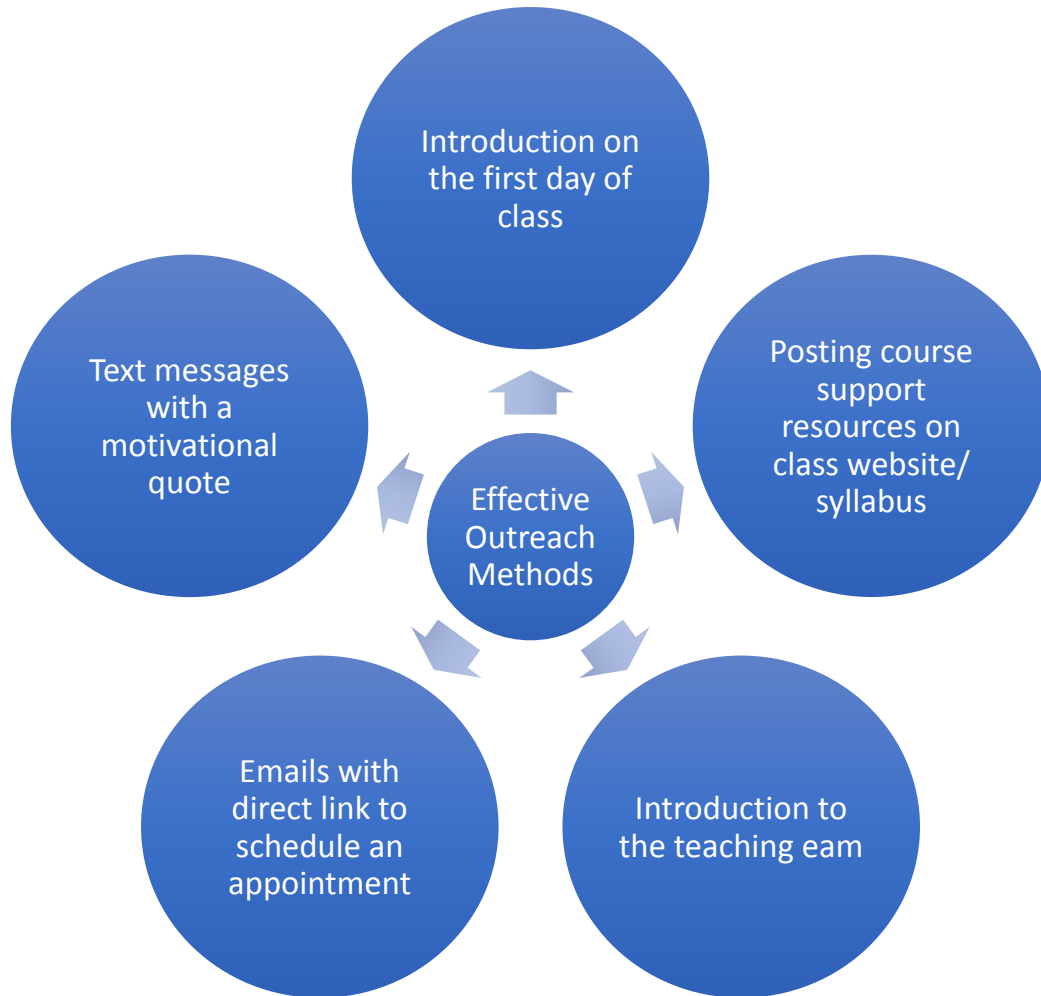
Teaching Team Meetings

- Case manage target population
- Track progress, grades on exams
- Identify students who need extra support post midterm or based on attendance etc.
- Share non academic barriers impacting certain students



Track Pass Rates after Grades Post

- Download grades after grades post
- Do outreach to target population who did not pass
- Advise on next steps - retaking class, other resources, major qualification.



Evidence of Success

- Our grant logic model, identified three lower division STEM courses.
 - In 2017 - 2018, we supported five courses (three unique courses).
- Due to interest of STEM faculty and our investment in faculty partnerships, we have supported 37 courses as of Winter 2022 (12 unique courses).
 - Pre-calculus
 - Introduction to Biology
 - Three Upper Division Biology courses
 - Introduction to Chemistry
 - Four Lower Division + One Upper Division Computer Science & Engineering course

Evidence of Success

HSI STEM Grant Course Analysis, Fall 2012 - Summer 2015

Course	% Latinx	% EOP	% Latinx/ EOP Pass Rate	% White non-EOP Pass Rate	% Difference
Bio 20A	27	38	59	86	27
Math 3	42	51	66	81	12

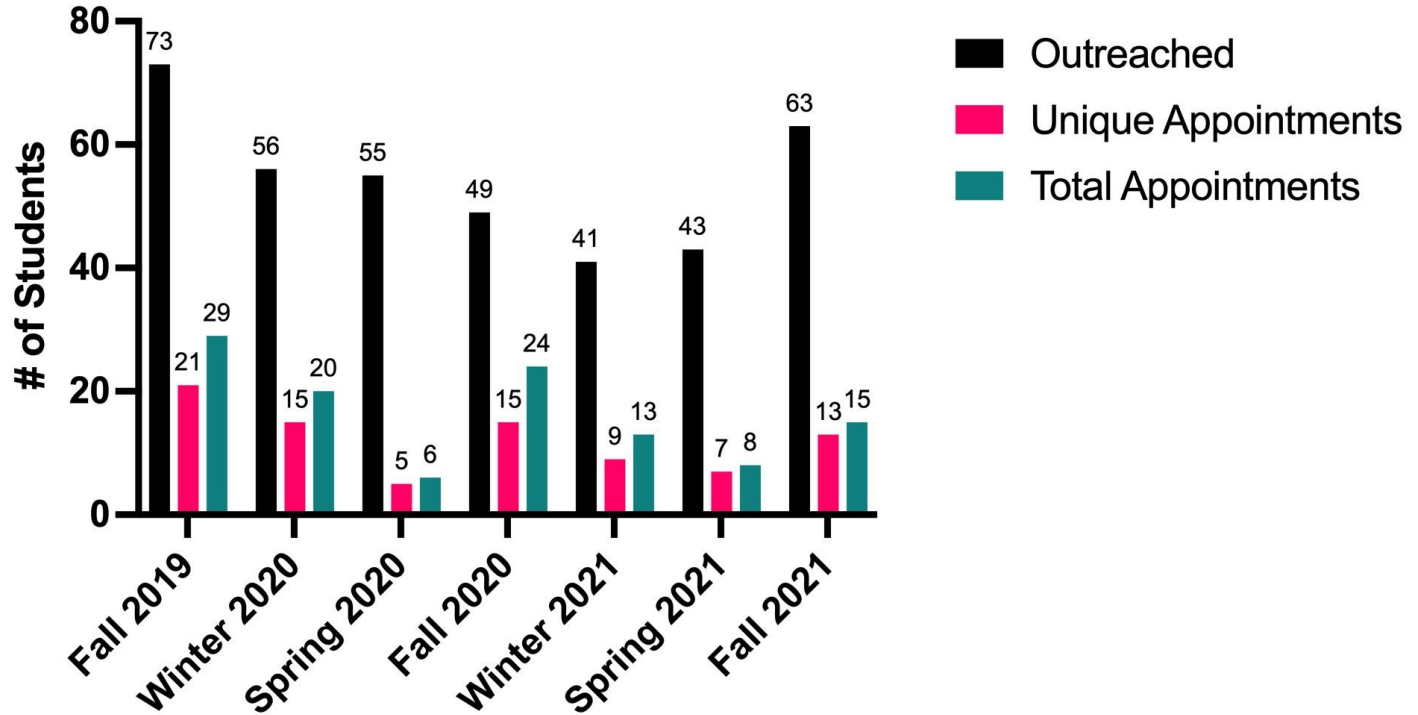
HSI STEM Grant Course Analysis, Fall 2017 - Summer 2021

Course	% Latinx	% EOP	% Latinx/ EOP Pass Rate	% White non-EOP Pass Rate	% Difference
Bio 20A	29	35	61	81	20
Math 3	38	46	73	84	11

Evidence of Success

Biology Course

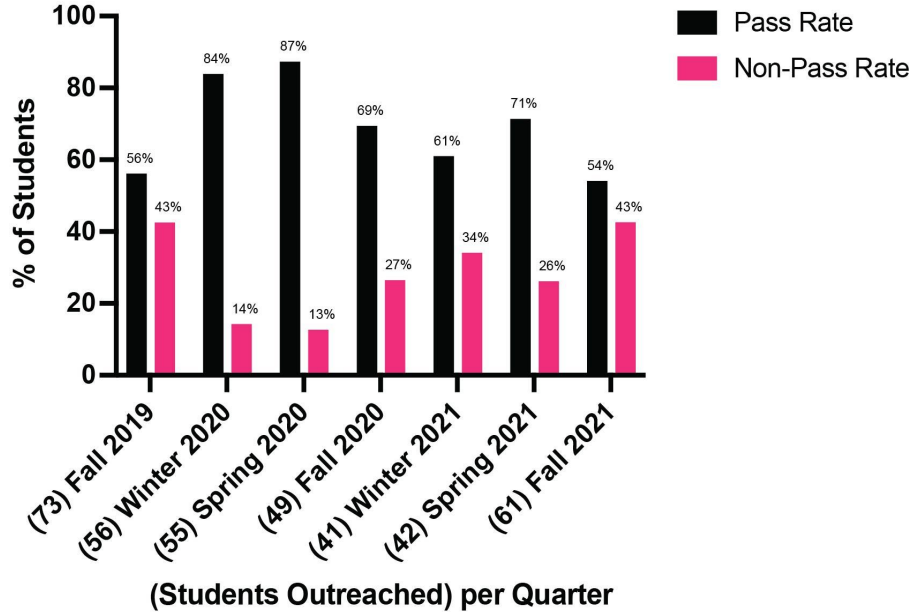
Graph 1:



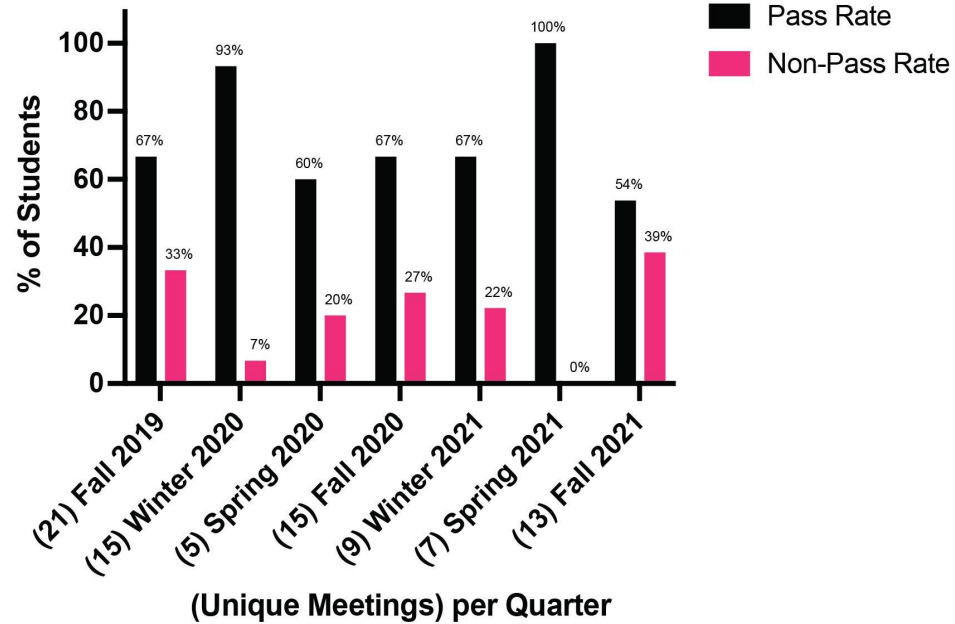
Evidence of Success

Biology Course

Graph 2:

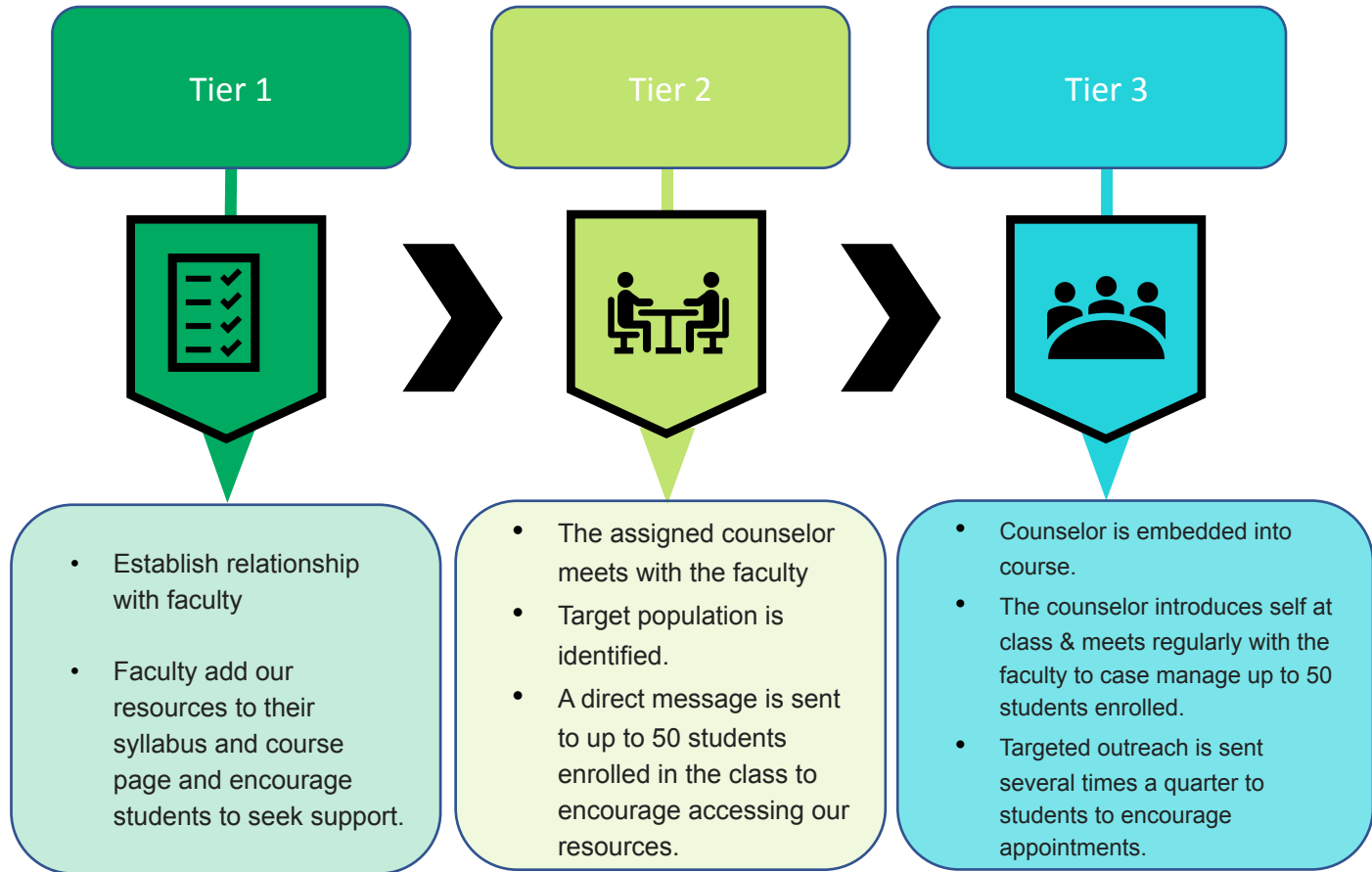


Graph 3:



Applicability for other HSI's

- Our course support model can be used at any institution.
- The main component is a two-sided investment between STEM faculty and advisors.
- Our course support tier model allows you to implement different levels of support based on faculty engagement or advisor capacity.



Concluding Thoughts

- Supports a sense of belonging on campus and within the STEM community
- Helps ensure students know they belong and are represented in these spaces
- Influences the importance of finding community within a classroom and feeling connected to their peers and faculty
- Challenges the siloed efforts on our campus and encourages our faculty and advisors to work collaboratively
- Is a social justice based intervention - we are tireless in our efforts to ensure we remove institutional barriers that create equity gaps

Q&A
Thank you!