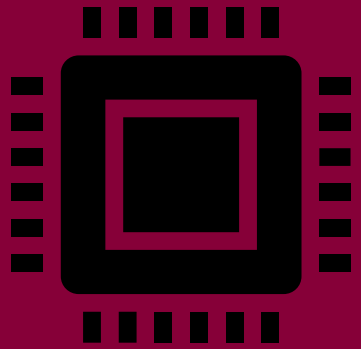
LEAD Center Research support for STEM tutors 2024 Fairmont



FAIRMONT STATE UNIVERSITY™

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FIRST2 NETWORK

The purpose of this project is to compile and examine Lead Center data on STEM tutoring to determine if more support is needed in STEM courses.

- **What did we do?**
  - **Examined LEAD center data from 2020-2024**
- **How did we do it?**
  - **Gathered Data from 20-24.**
  - **Most of this data is only looking at 20-23 due to 23-24 not having individual session data.**
- **Why is this needed?**
  - **To investigate the need of STEM tutors in the Lead Center to gauge if the Lead Center can benefit from hiring more STEM focused tutors**
  - **What academic backgrounds do these tutors need to keep up with the demands of STEM students**
- **How does this Benefit us as students?**
  - **Gives us a look at how to conduct research projects what works and what doesn’t.**
  - **Gives us a chance to expand our leadership knowledge for the future.**

Who did we classify as a STEM tutor?

If a tutor spends more than 60% of their time tutoring STEM classes, then that tutor will be classified as a STEM tutor.

Since 2020 how many STEM tutors worked in the Lead Center? Has this changed?

2020-2021

- **Total Tutors: 33**
- **STEM Tutors: 29 (88% of total)**
- **First2-Sponsored Tutors: 8**
- **Total Visits: 1502**
- **STEM Visits: 1176 (78% of total visits)**

2021-2022

- **Total Tutors: 46 ↑**
- **STEM Tutors: 27 (59% of total) ↓↓**
- **First2/S-STEM-Sponsored Tutors: 8 -**
- **Total Visits: 3464 ↑**
- **STEM Visits: 1796 (52% of total visits) ↑↓**

2022-2023

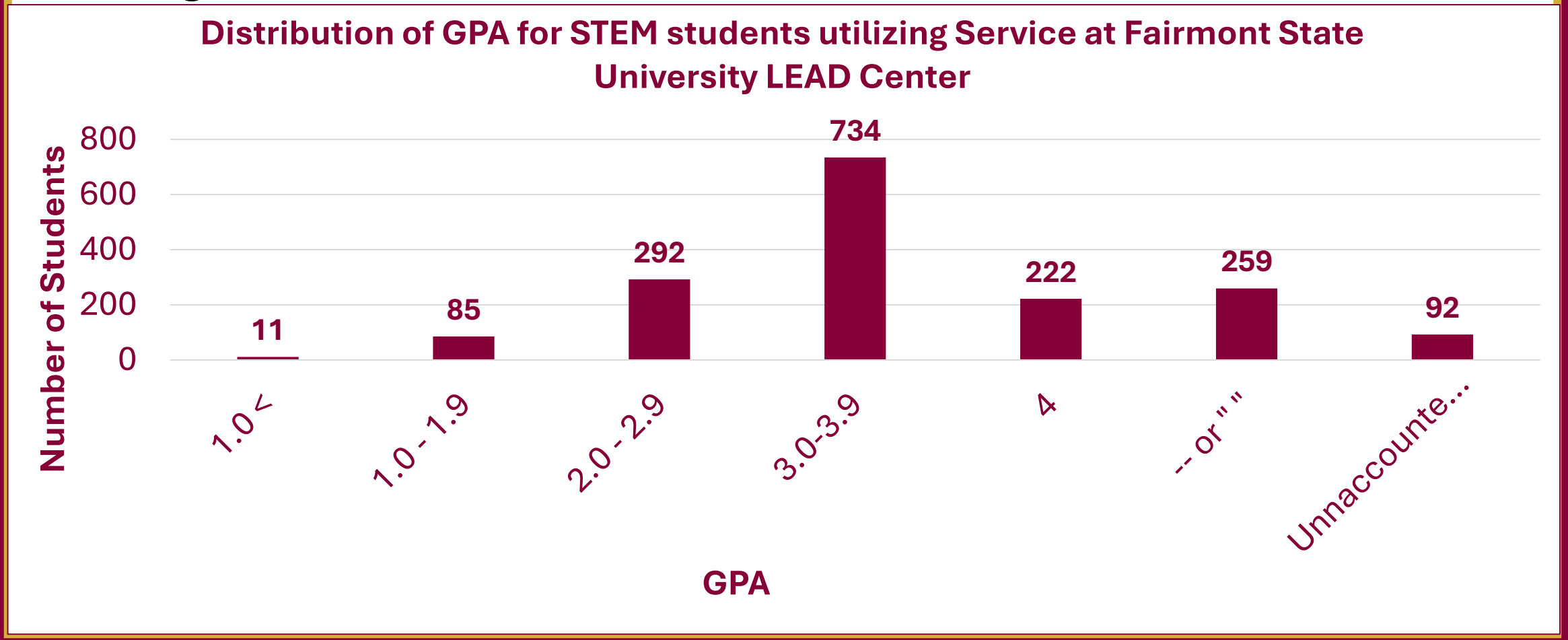
- **Total Tutors: 32 ↓**
- **STEM Tutors: 21 (66% of total) ↓↑**
- **First2/S-STEM-Sponsored Tutors: 4 ↓**
- **Total Visits: 2755 ↓**
- **STEM Visits: 1667 (61% of total visits) ↓**

2023-2024

- **Total Tutors: 19 ↓**
- **STEM Tutors: 13 (68% of total) ↓↑**
- **First2/SURE-Sponsored Tutors: 2 ↓**
- **Total Visits: 2141 ↓**
- **STEM Visits: (DATA NOT PROVIDED)**

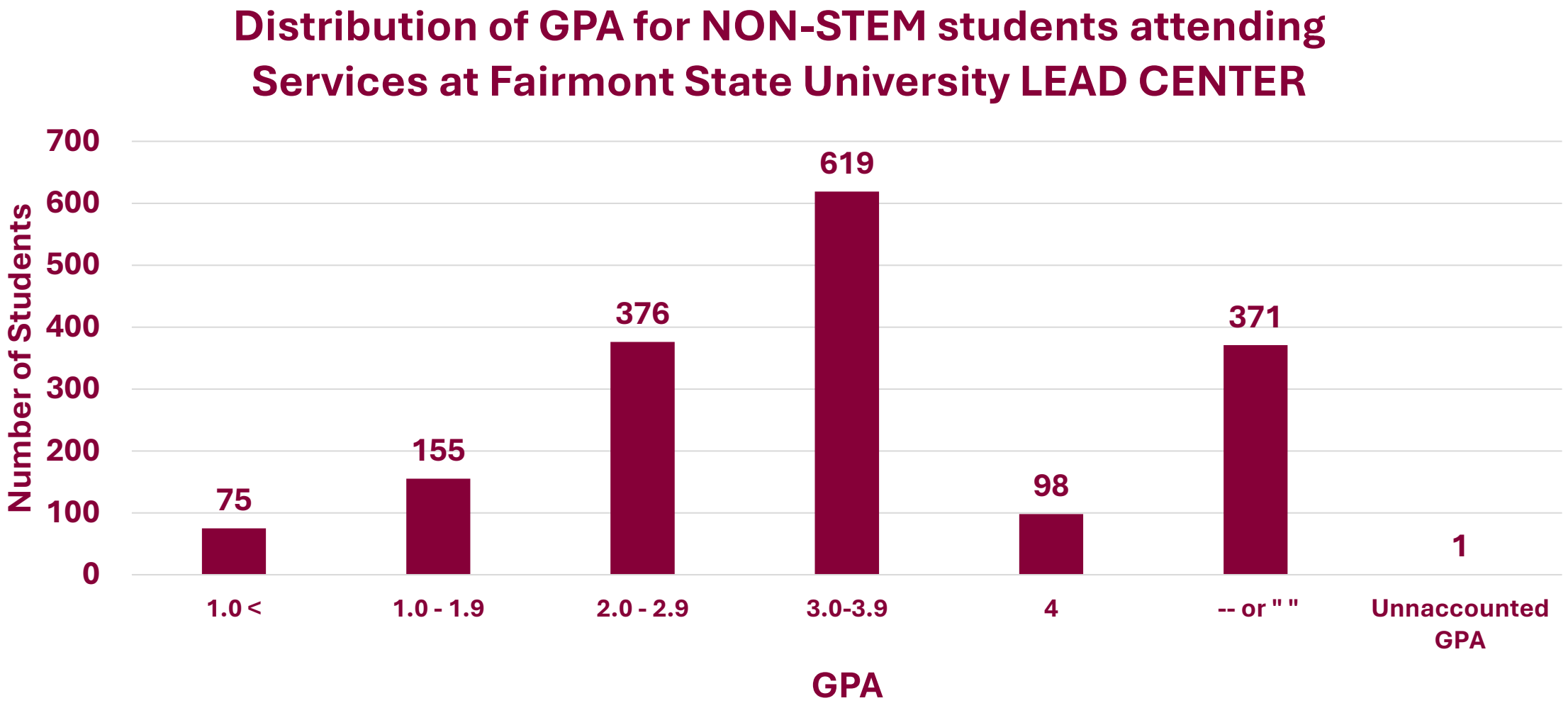
Who attended tutoring (GPA, major, year)?

The Average GPA of a STEM student was 3.18 +/- 0.85
60.5% of all STEM students who attended tutoring are in the range of 2.0 – 3.9 GPA range.

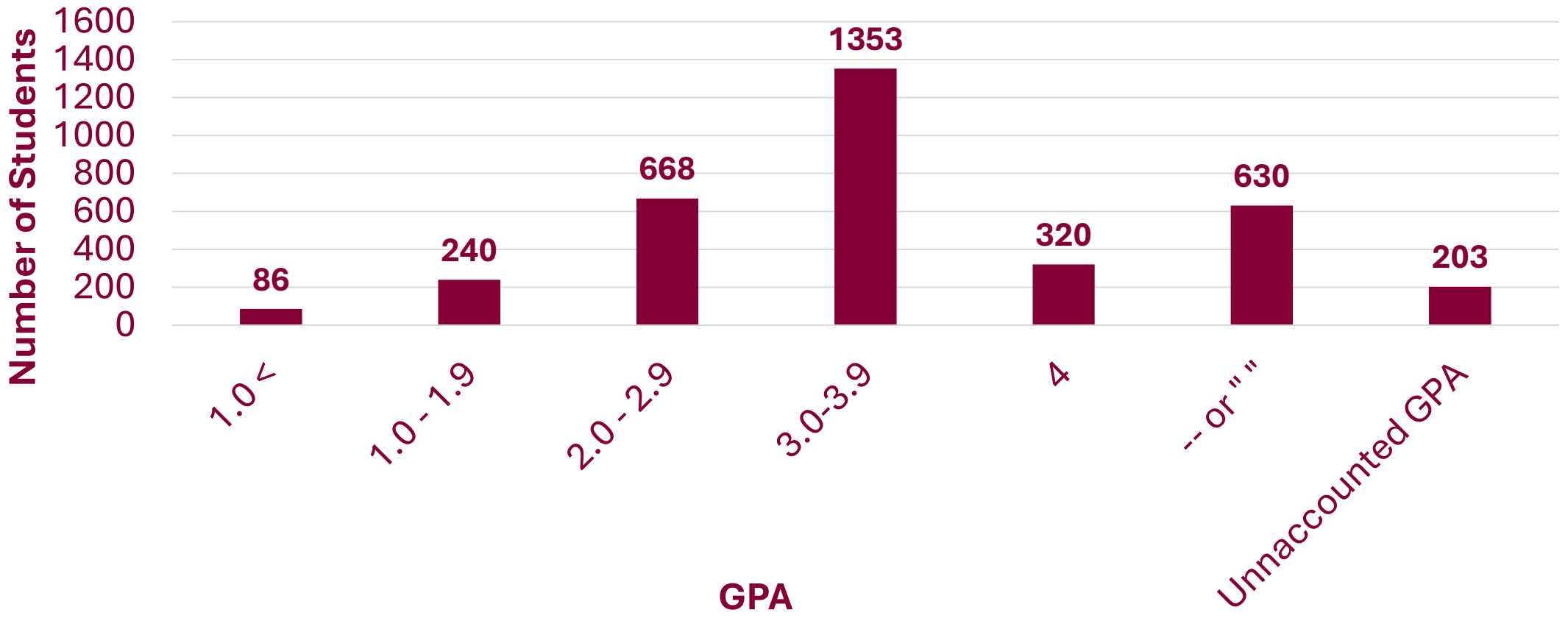


Who attended tutoring (GPA, major, year)?

The Average GPA of a NON-STEM student was 2.81 +/- 0.85.



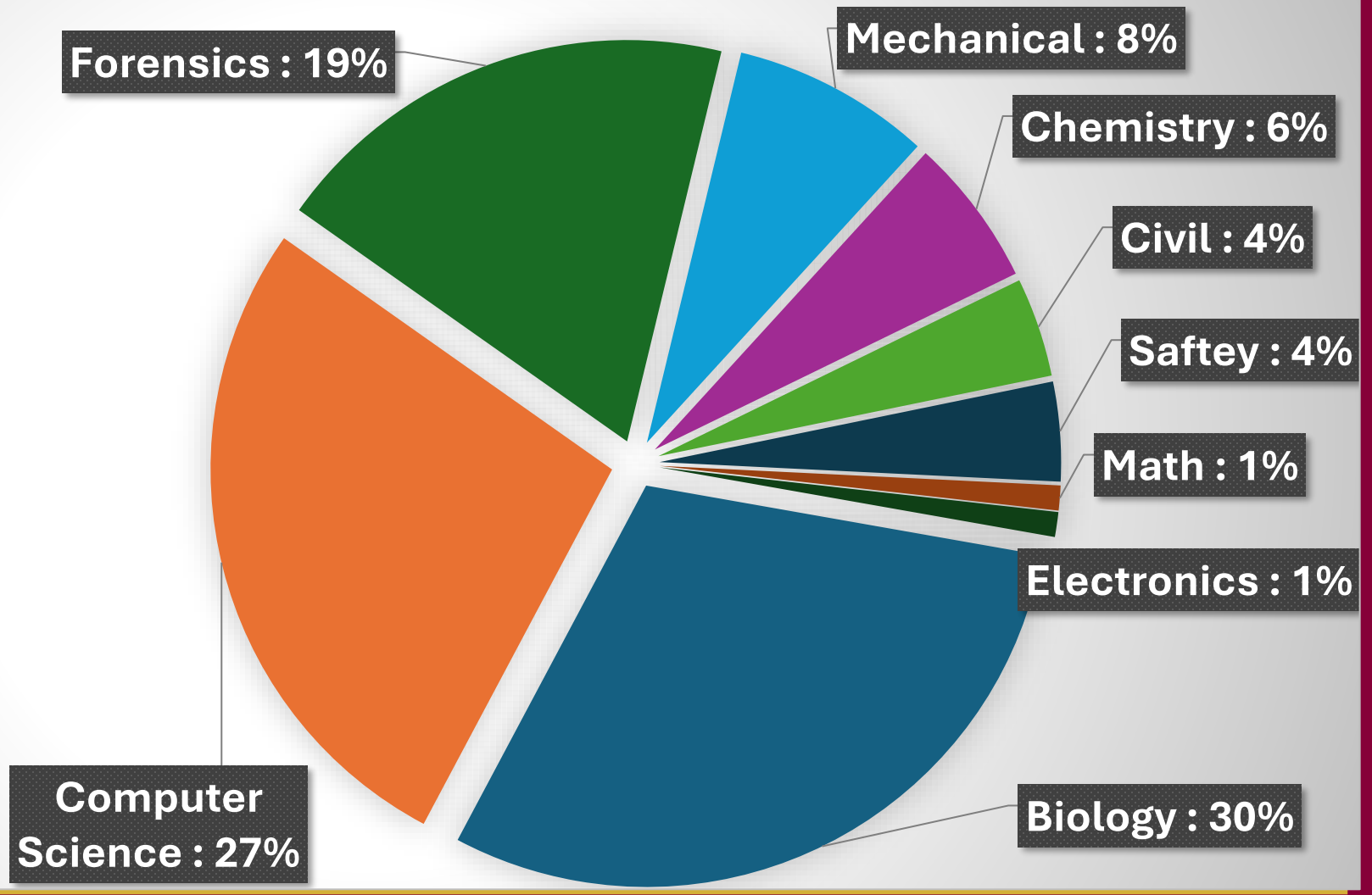
Distribution of GPA for all students utilizing services at Fairmont State University LEAD Center 22-23



Who attended tutoring (GPA, major, year)?

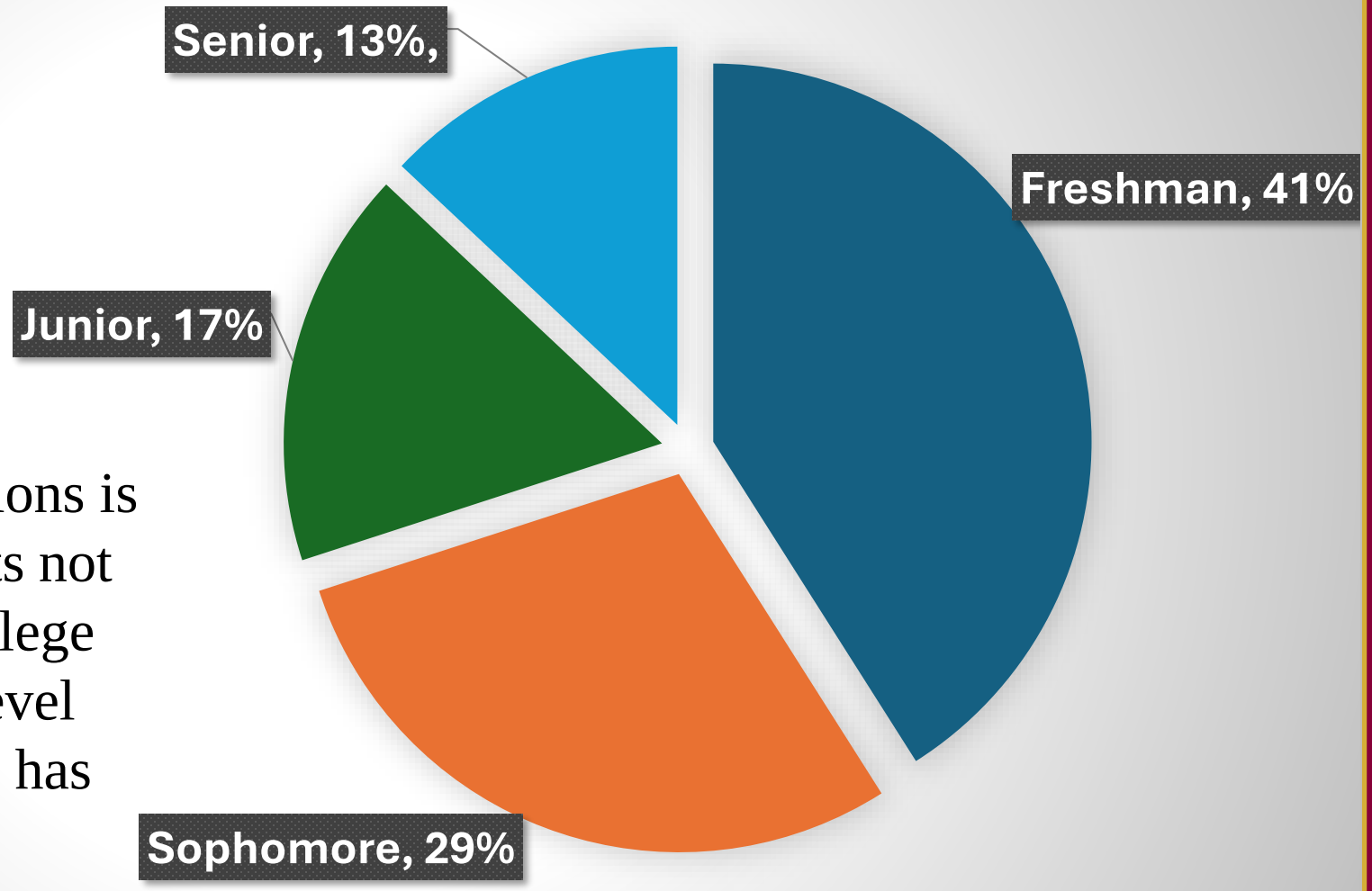
STEM Majors 20-23

Biology	30%
Computer Science	27%
Forensics	19%
Mechanical	8%
Chemistry	6%
Civil	4%
Safety	4%
Math	1%
Electronics	1%



What types of STEM students attend tutoring (GPA, major, year)?

Year	
Freshman	41%
Sophomore	29%
Junior	17%
Senior	13%



The Gradual decline in sessions is to be expected from Students not needing tutoring as their college career goes on and higher-level class not having a tutor who has passed the class

Non-Stem Majors coming for Gen Ed Stem Related Classes (22-23)

- **CHEM : 98 Appointments**
  - **CHEM 1101 : 41**
  - **CHEM 1105 : 57**
- **BIOL : 48 Appointments**
  - **BIOL 1106 : 29**
  - **BIOL 1105 : 19**
- **MECH : 17**
  - **MECH 1100 : 17**
- **PHYS : 7**
  - **PHYS 1101 : 7**
- **MATH : 128 Appointments**
  - **MATH 1540 : 42**
  - **MATH 1430 : 36**
  - **MATH 1410 : 20**
  - **MATH 1520 : 9**
  - **MATH 1530 : 9**
  - **MATH 1550 : 6**
  - **MATH 1407 : 5**
  - **MATH 1501 : 1**
- **COMP : 3**
  - **COMP 1120 : 3**

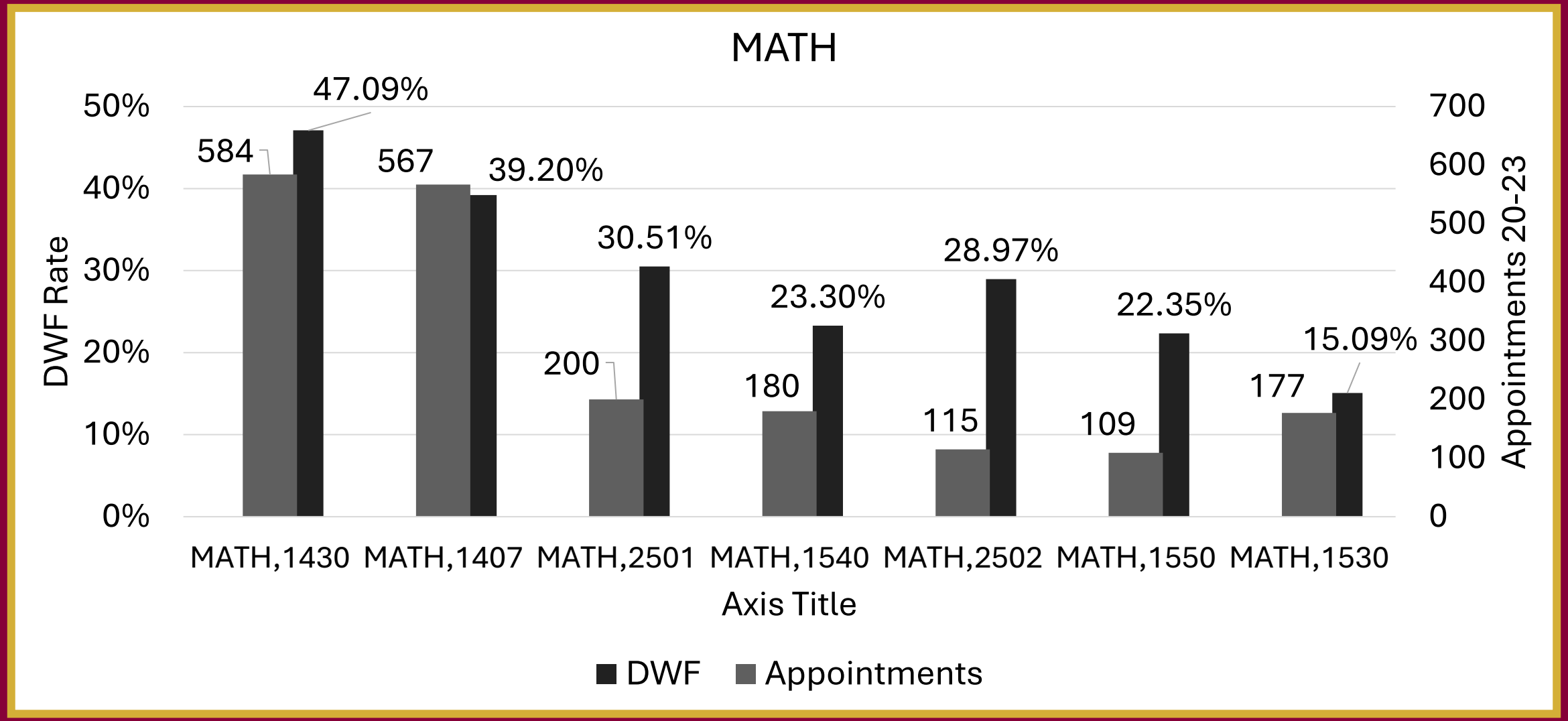
In what STEM courses do students need tutoring?

- **CRN : DWF Rate**
- **MATH**
  - **1430 : 47.09% (College Algebra w/ Support)**
  - **1407 : 39.20% (Fund. Concepts of math w/ Support)**
  - **2501 : 30.51% (Calc I)**
  - **2502 : 28.97% (Calc II)**
  - **1540 : 23.30% (Trigonometry)**
  - **1550 : 22.35% (Applied Statistics)**
  - **1530 : 15.09% (College Algebra)**
- **BIOL**
  - **1105 : 33.40% (Biological Principles I)**
  - **1106 : 32.87% (Biological Principles II)**
- **MECH**
  - **1100 : 24.81% (Statics)**
  - **2200 : 25.1 (Strengths)**
- **COMP**
  - **1120 : 54.86% (Principals to Programming I)**
- **PHYS**
  - **1101 : 7.14% (Introduction to Physics I)**
- **CHEM**
  - **1105 : 33.77% (Chemical Principles)**
  - **2200 : 21.99% (Foundational Biochemistry)**
  - **2201 : 20.87% (Organic Chemistry)**
  - **1101 : 20.04% (General Chemistry)**

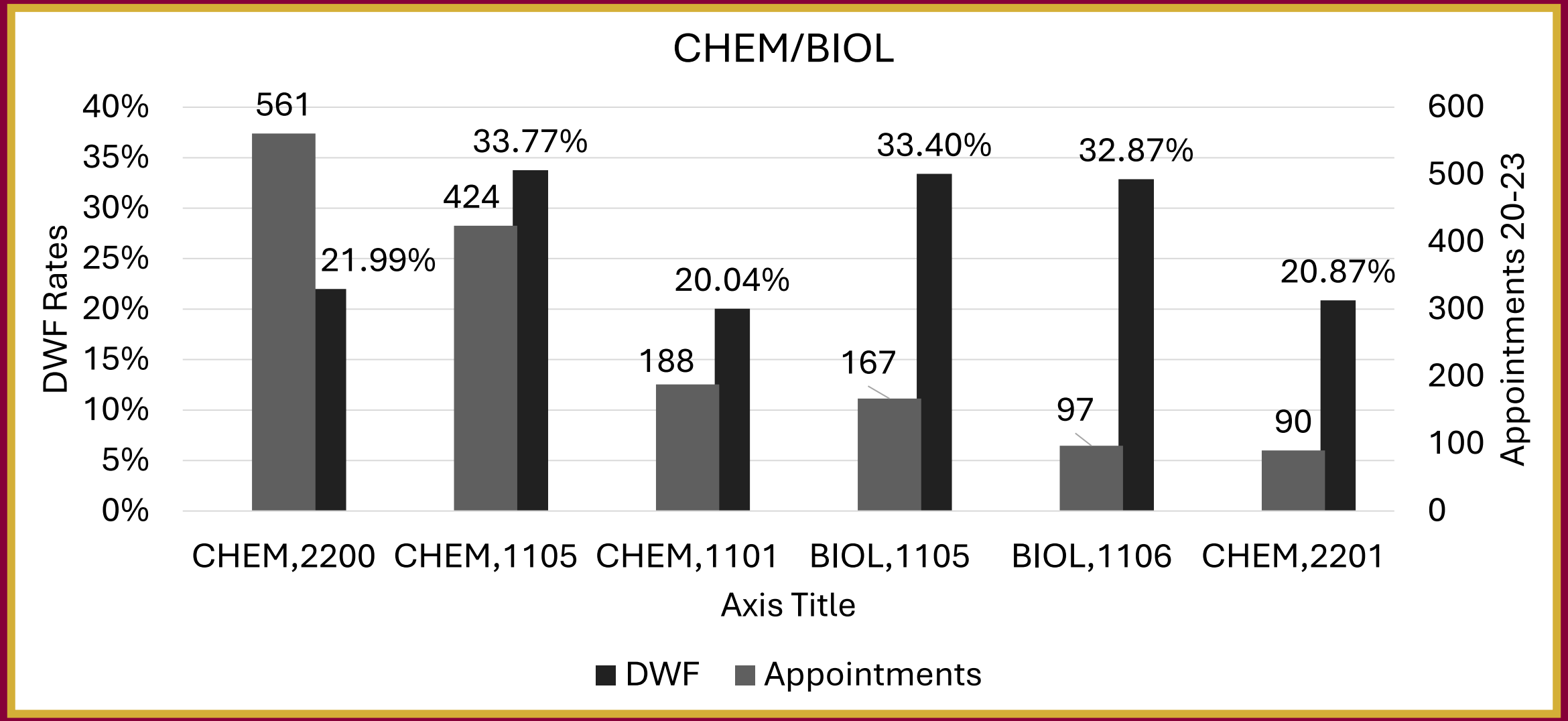
How often are these High DFW Classes coming in?

- CRN : Percentage of Tutor Request
- MATH
  - 1430 : 12.26% (College Algebra w/ Support)
  - 1407 : 11.90% (Fund. Concepts of math w/ Support)
  - 2501 : 4.20% (Calc I)
  - 2502 : 2.41% (Calc II)
  - 1540 : 3.78% (Trigonometry)
  - 1550 : 2.29% (Applied Statistics)
  - 1530 : 3.72% (College Algebra)
- CHEM
  - 1105 : 8.9% (Chemical Principles)
  - 2200 : 11.78% (Foundational Biochemistry)
  - 2201 : 1.89% (Organic Chemistry)
  - 1101 : 3.95% (General Chemistry)
- MECH
  - 1100 : 2.64% (Statics)
  - 2200 : 2.31% (Strengths)
- COMP
  - 1120 : 2.02% (Principals to Programming I)
- PHYS
  - 1101 : 1.78% (Introduction to Physics I)
- BIOL
  - 1105 : 3.51% (Biological Principles I)
  - 1106 : 2.04% (Biological Principles II)

Math DWF & Appointments?



CHEM/BIOL DWF & Appointments?



In what STEM courses do students need tutoring?

The Big Five

- **Math 1430 (College Algebra w/ Support)**
- **Math 1407 (Fund. Concepts of math w/ Support)**
- **CHEM 1105 (Chemical Principles)**
- **CHEM 2200 (Foundational Biochemistry**
- **BIOL 1105 (Biological Principles I)**

Are there enough tutors and tutoring hours to meet the demand in STEM?

The Average Hours a STEM Tutor will tutor a year is Roughly 80 Hours.
Over the years 2020-2023 the Average STEM Sessions is 1588 a year.
This means the Lead center will need on average 20 Tutors For Stem.
Keeping the 60% Stem-non stem balance there will need to be 33 Total Tutors to cover Stem and Non-Stem Workload.

- **First2 no longer has funding to supply the Lead Center with tutors causing them to lose 5 tutors who cover 12%-24% of STEM tutoring visits.**
- **From 2020-2023, the Lead center lost 4 STEM tutors even though STEM tutoring requests increased from 1176 to 1667.**
- **STEM tutors should make up over 60% of the tutors to meet students' requests.**

What funding bodies supported the STEM tutors at the Lead Center since 2020?

- **20-21 : No additional tutors were used in the lead center.**
- **21-22 : First2 tutors covered 12% of STEM tutoring visits in the lead center (n = 5).**
- **22-23 : First2 tutors covered 24% of STEM tutoring visits in the lead center (n = 5).**
- **23-24 : Data not available from the lead center. First2 and Sure provided 2 tutors to the lead center.**

First2, S-STEM, SURE have provided funding for additional natural science tutors as well as additional embedded or course specific tutors that do not tutor in the Lead Center.

How many STEM tutors would be needed to meet the demands of STEM courses?

The Lead Center needs to have an average of 20 Tutors who prioritize the demands of STEM courses.

Looking at the previous Years:

20-21 had 17 STEM tutors

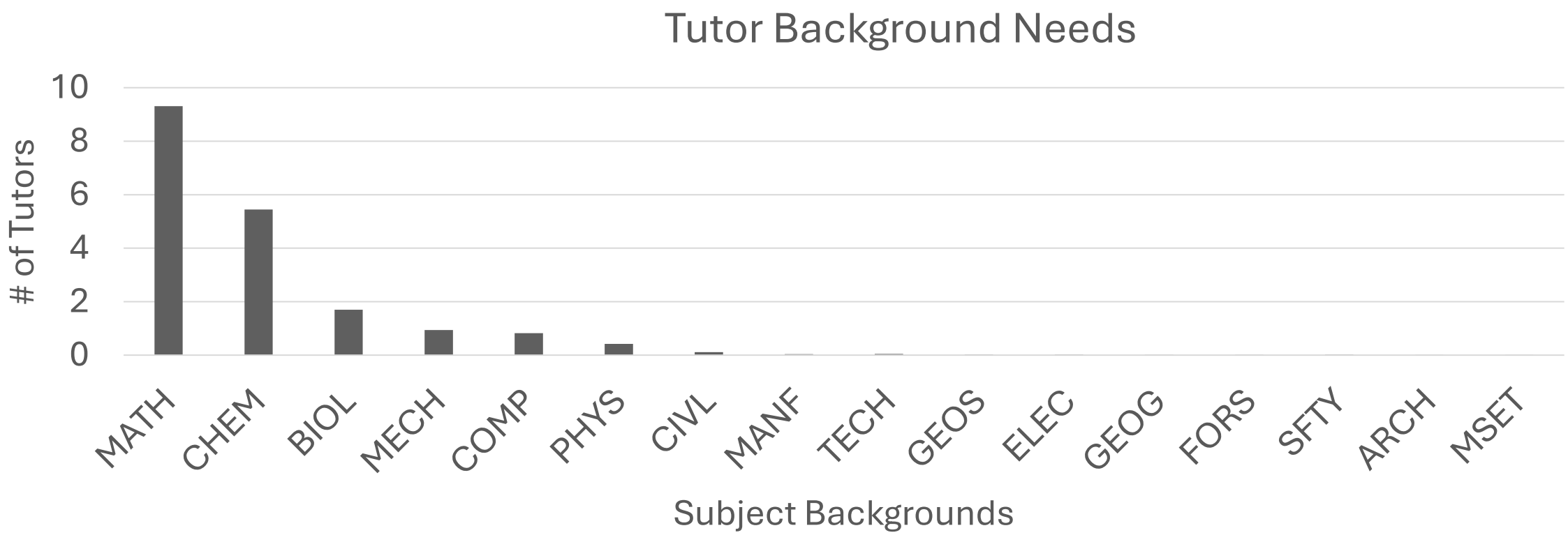
21-22 had 25 STEM tutors

22-23 had 21 STEM tutors

23-24 had 14 Tutors who were brought on with a STEM focus. No data exist to test if any of these 14 Tutors would not meet the 60% STEM Tutor Test we set up for this research.

What are our Recommendations?

- **Hire 33 Total Tutors**
  - **20 STEM Focus Tutors**



Personal stories from the tutors

Unfortunately, there is no data on the quality of the sessions except looking at the average GPA of STEM Students.

But we have our own Success Stories

-Proud Father

-Trig

-Creating a Success Plan for a struggling Peer

Acknowledgements

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