

The background features a dark, textured design with several overlapping circular elements. Some are solid lines, while others are dashed. There are also numerical markings, such as '140', '150', '160', '170' and '230', '240', '250', '260', scattered across the scene. The overall aesthetic is technical and mathematical.

**EXAMINATION EXAMINATION:  
DOES ACCUPLACER PREDICT  
ANYTHING?!**

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# FUNDAMENTAL QUESTIONS

What is an Entrance Exam *supposed to do*?!

- *Our optimistic response*: Act as a high-pass filter ensuring Success at DMACC
  - Our standard for “Success” : **a 2.0 GPA**
- Our Compass Exams were replaced by Accuplacer Exams in 2016
  - The conversion was messy.
- Everyone was excited to switch, but, *is Accuplacer doing its job any better?!*

*How do you assess its efficacy?*

*Sounds like a job for DATA!*

# DATA COLLECTION

- Our data:
  - Accuplacer Exams given between Nov. 2016 – Feb 2018
    - From students taking Accuplacer as an admission requirement
    - The following Exams were given (the number of takers follows in parentheses)
- **College-level Mathematics (11)**
- **Elementary Algebra (51)**
- **Arithmetic (143)**
- **ESL – Sentence Meaning (628)**
- **ESL – Reading Skills (632)**
- **ESL – Language Usage (646)**
- **ESL – Listening (664)**

Very low sample size;  
Largely superceded by  
ALEKS

- **Sentence Skills (4347)**
- **Reading Comprehension (4362)**

The most likely to produce  
meaningful trends

Moderate sample size;  
Increased population  
variability

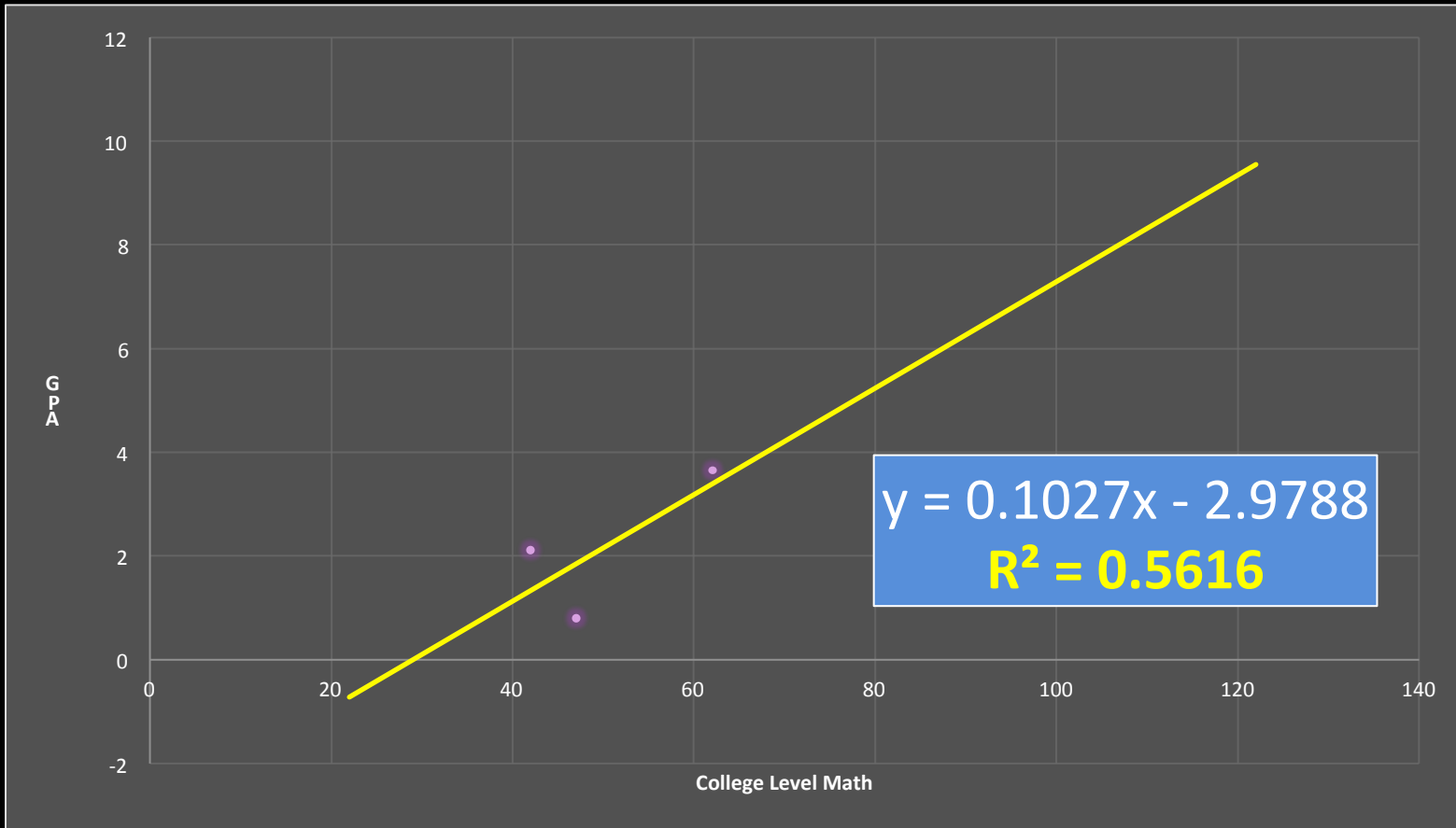
# INVESTIGATIVE QUESTIONS

- **Is there a correlation between any Accuplacer score and First Semester GPA?**
  - How strong?
  - On which tests?
- **Can we use this Correlation to predict...**
  - An Accuplacer “cut score” that ensures a 2.0 GPA?
  - Anything?

# METHODS

- Data used:
  - **Scores** on various Accuplacer Tests (20 – 120 scale)
  - **Mean First Semester GPA** for students with a specific score (Our 4.00 scale)
    - Students with *No reported GPA* are left blank.
    - No distinction based upon *which* classes were taken.
- **The approach:**
  - Without specific student GPAs, scores were grouped into 21 5-point classes (Bins)
  - A Mean GPA was computed for each class, on each Exam.
  - A Least-Squares Linear Regression was formed; its quality analyzed statistically.
    - **Statistics-wise:** We used a 2% level of significance

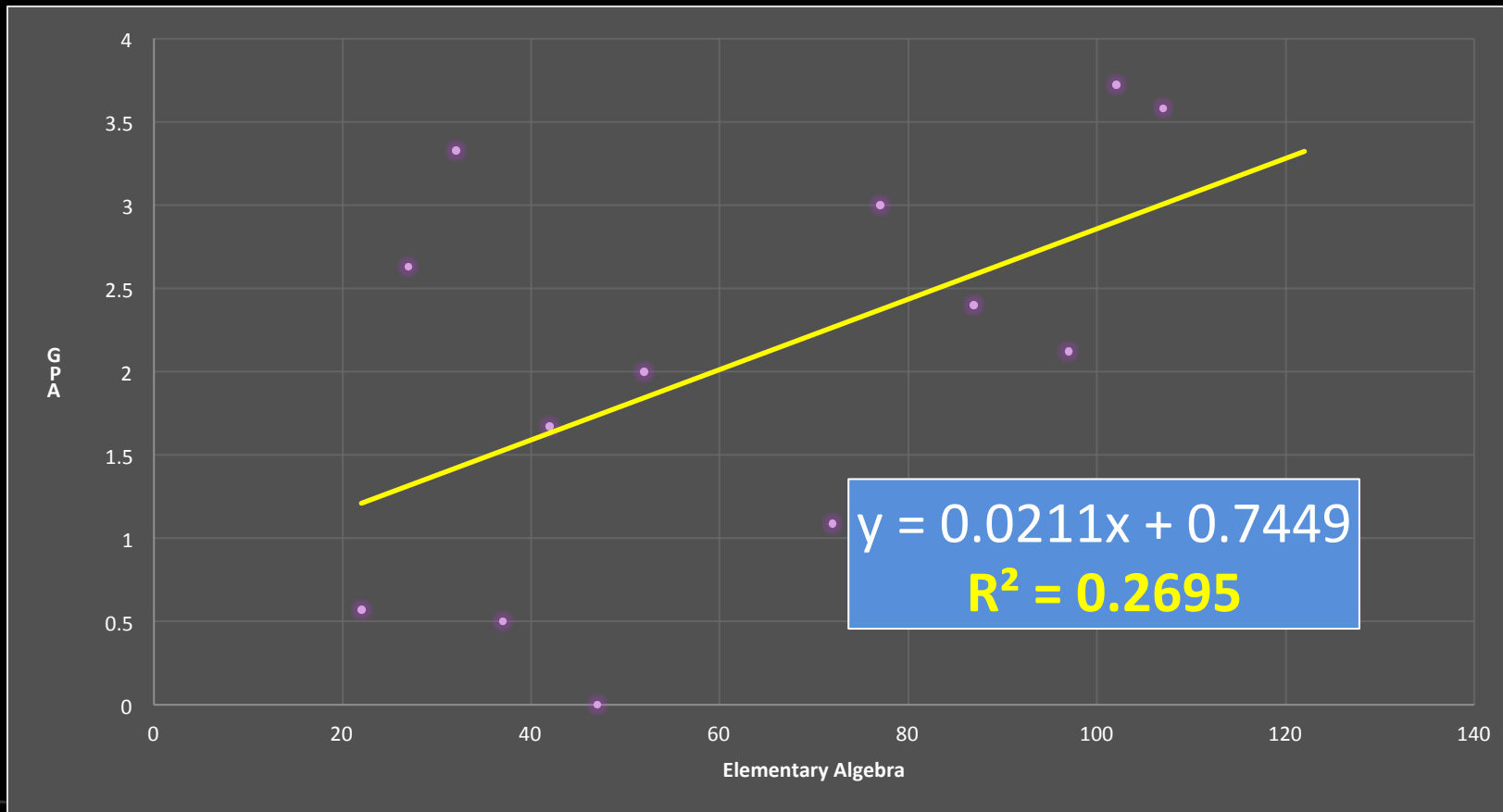
# COLLEGE LEVEL MATH



Sample Size: 11

Bin	Midpoint	St. Count	AGPA
20-24	22	0	
25-29	27	3	
30-34	32	0	
35-39	37	1	
40-44	42	1	2.12
45-49	47	3	0.8
50-54	52	0	
55-59	57	0	
60-64	62	2	3.65
65-69	67	0	
70-74	72	0	
75-79	77	0	
80-84	82	0	
85-89	87	0	
90-94	92	0	
95-99	97	0	
100-104	102	1	
105-109	107	0	
110-114	112	0	
115-119	117	0	
120-124	122	0	

# ELEMENTARY ALGEBRA



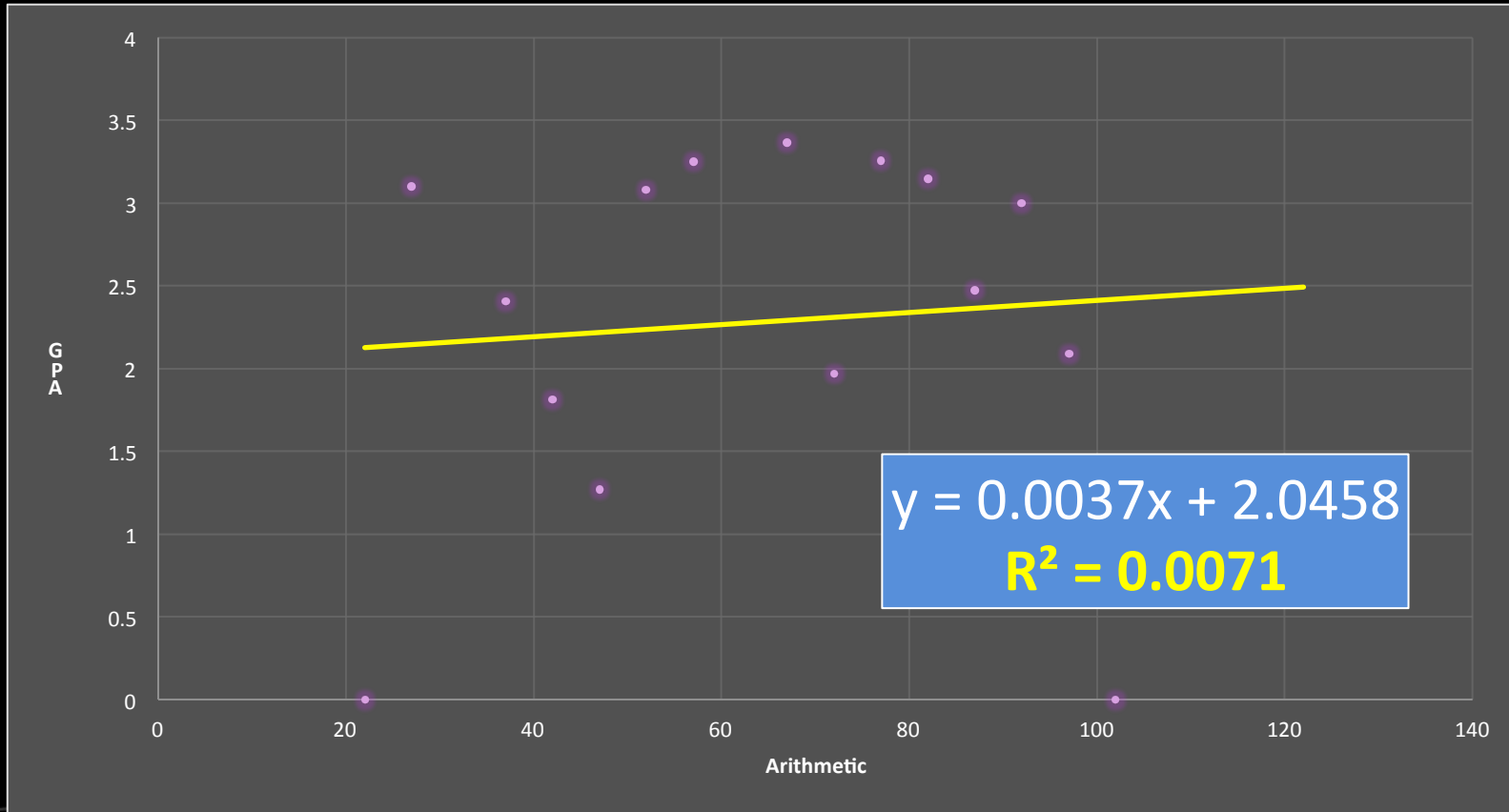
<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	7	0.566667
25-29	27	3	2.63
30-34	32	4	3.33
35-39	37	4	0.5
40-44	42	6	1.67
45-49	47	4	0
50-54	52	2	2
55-59	57	3	
60-64	62	4	
65-69	67	0	
70-74	72	1	1.09
75-79	77	1	3
80-84	82	0	
85-89	87	4	2.4
90-94	92	0	
95-99	97	3	2.12
100-104	102	4	3.72
105-109	107	1	3.58
110-114	112	0	
115-119	117	0	
120-124	122	0	

Sample

Size:

51

# ARITHMETIC

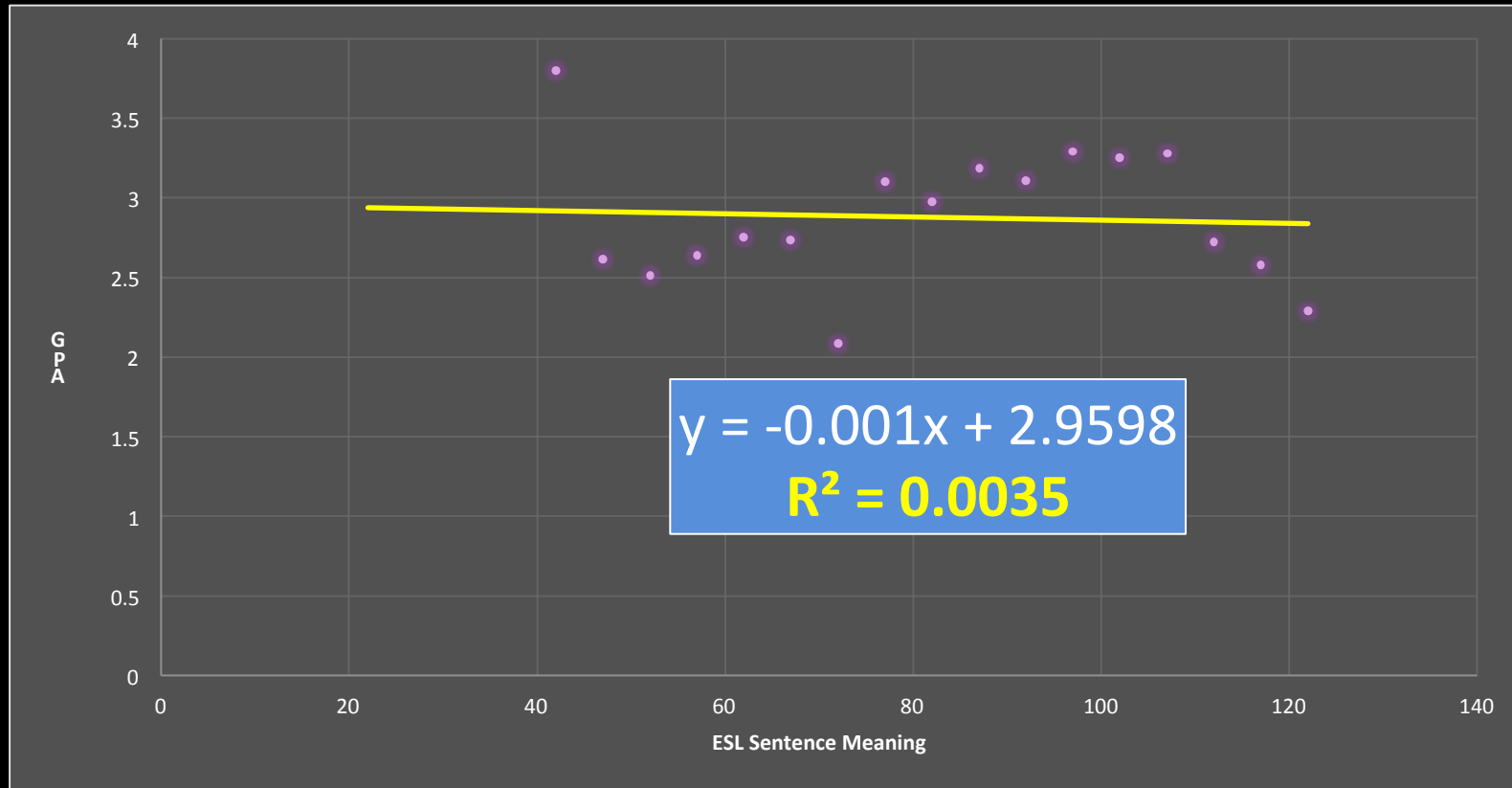


<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	13	0
25-29	27	8	3.098
30-34	32	9	
35-39	37	13	2.403333
40-44	42	12	1.81
45-49	47	4	1.27
50-54	52	6	3.0775
55-59	57	9	3.25
60-64	62	4	
65-69	67	8	3.365
70-74	72	6	1.97
75-79	77	10	3.255
80-84	82	8	3.1425
85-89	87	7	2.47
90-94	92	9	3
95-99	97	6	2.086667
100-104	102	3	0
105-109	107	2	
110-114	112	2	
115-119	117	4	
120-124	122	0	

**Sample  
Size: 143**



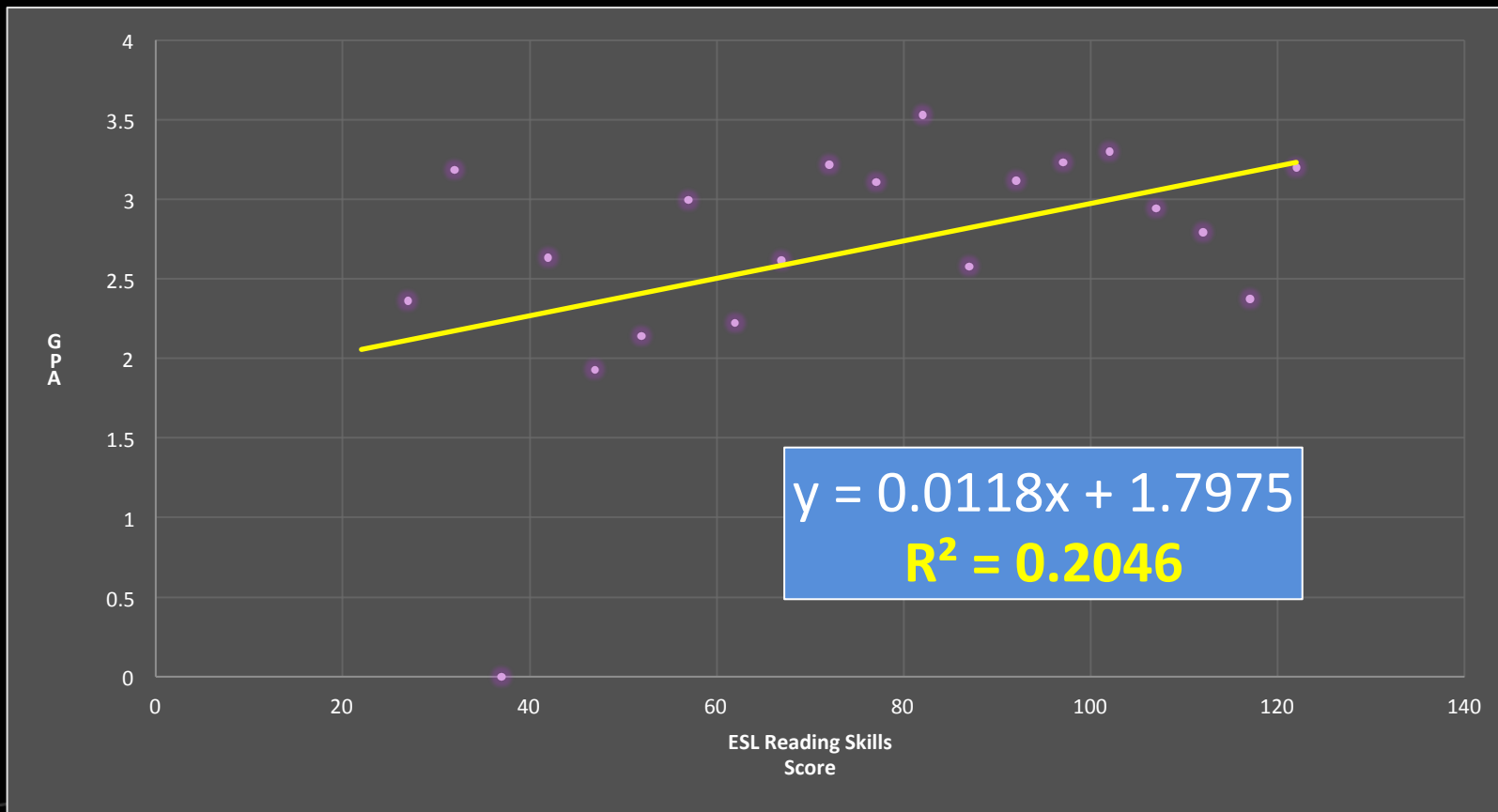
# ESL SENTENCE MEANING



**Sample Size: 628**

<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	6	
30-34	32	9	
35-39	37	7	
40-44	42	11	3.8
45-49	47	19	2.610526
50-54	52	21	2.512381
55-59	57	32	2.639286
60-64	62	24	2.756667
65-69	67	22	2.733636
70-74	72	29	2.082759
75-79	77	37	3.099459
80-84	82	35	2.977714
85-89	87	49	3.183673
90-94	92	55	3.108364
95-99	97	36	3.288056
100-104	102	59	3.251695
105-109	107	65	3.279846
110-114	112	64	2.725
115-119	117	36	2.578611
120-124	122	12	2.29

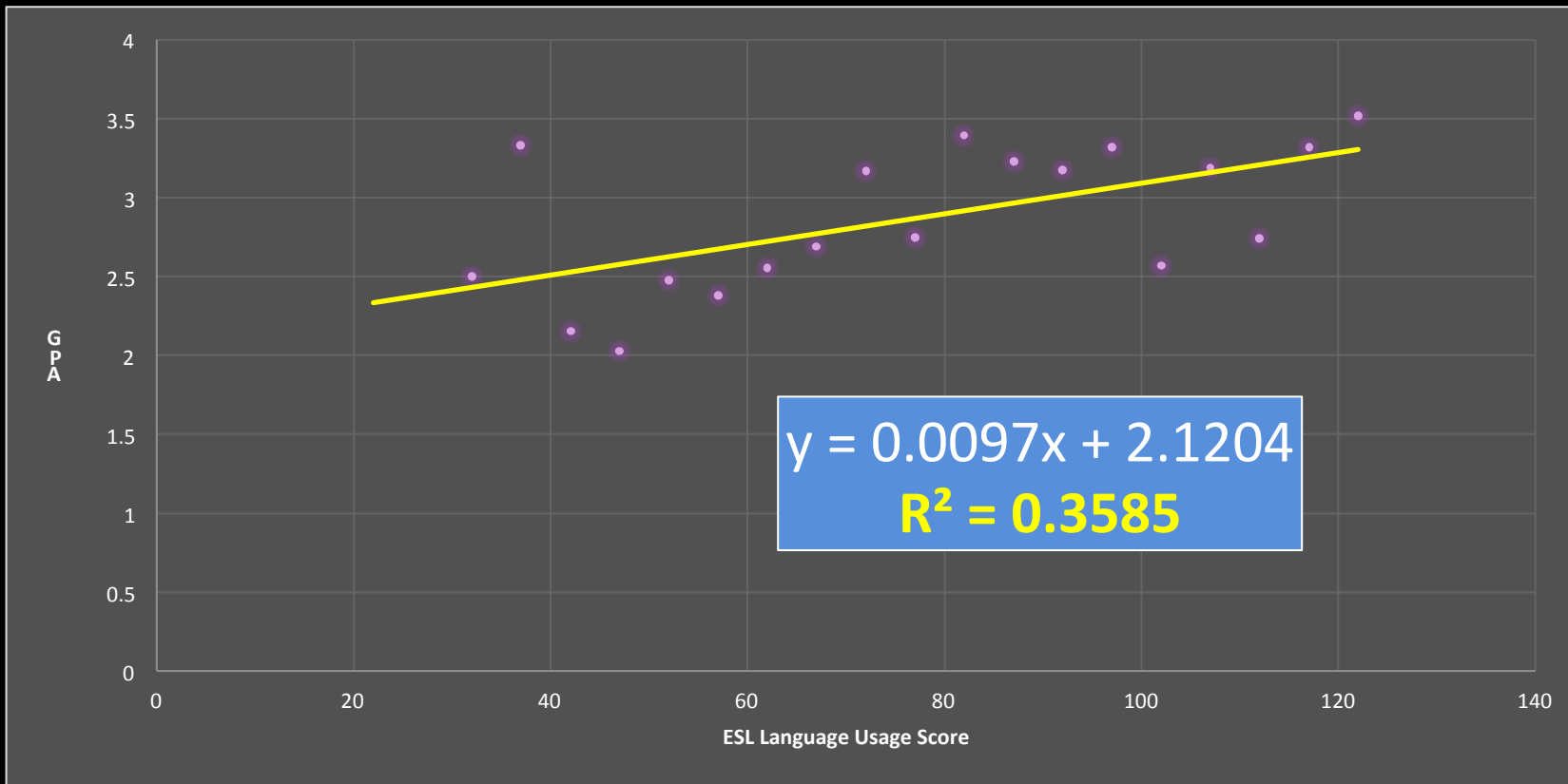
# ESL READING SKILLS



**Sample Size:** 632

<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	21	2.363333
30-34	32	13	3.183333
35-39	37	8	0
40-44	42	22	2.634211
45-49	47	20	1.930714
50-54	52	34	2.142059
55-59	57	31	2.993793
60-64	62	36	2.220278
65-69	67	34	2.613214
70-74	72	35	3.216857
75-79	77	42	3.11
80-84	82	39	3.528205
85-89	87	51	2.575294
90-94	92	58	3.116724
95-99	97	49	3.231837
100-104	102	37	3.30027
105-109	107	44	2.941282
110-114	112	41	2.794878
115-119	117	7	2.373333
120-124	122	10	3.2

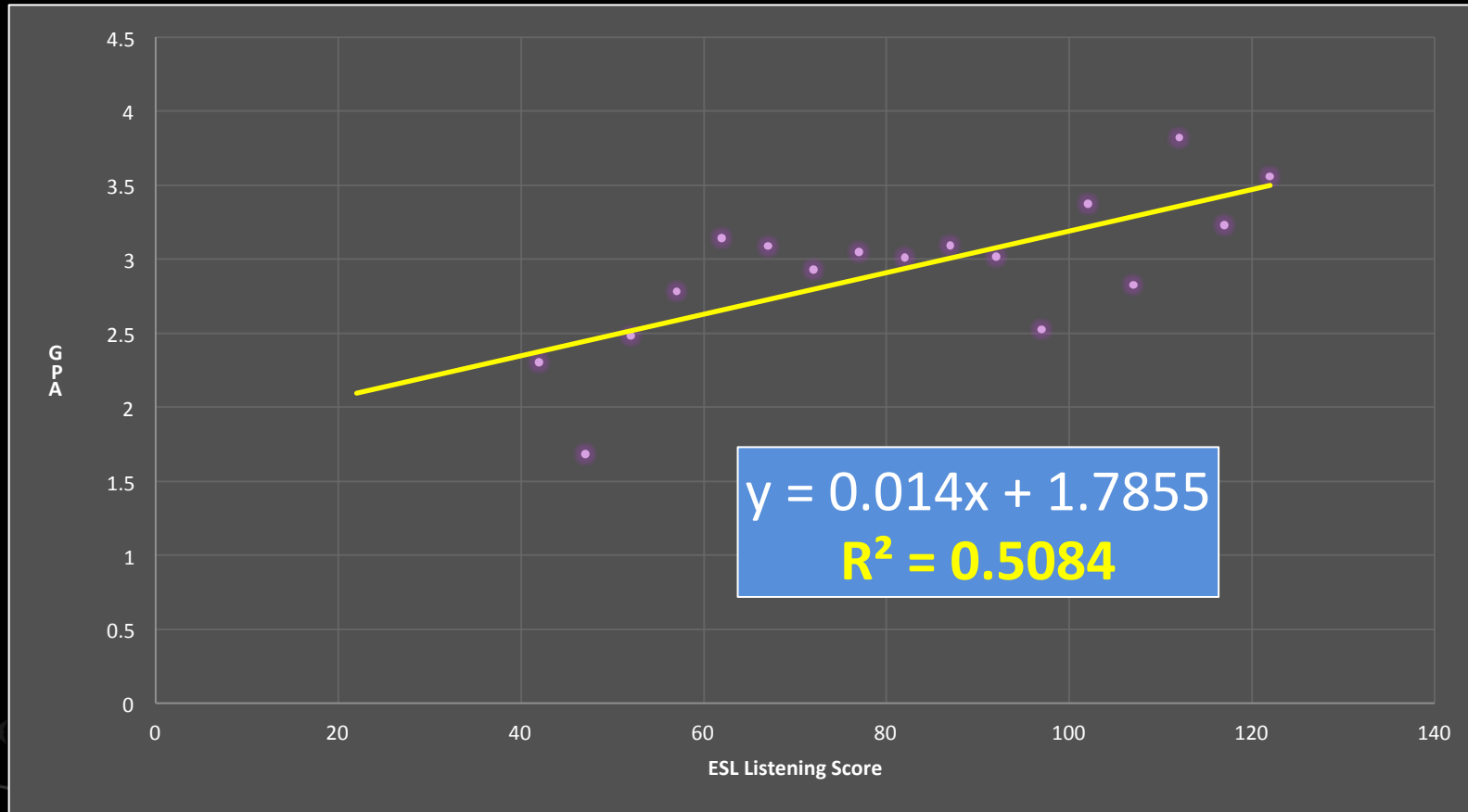
# ESL LANGUAGE USAGE



<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	4	
30-34	32	7	2.5
35-39	37	9	3.33
40-44	42	24	2.154167
45-49	47	21	2.026667
50-54	52	29	2.472069
55-59	57	35	2.378857
60-64	62	27	2.554074
65-69	67	38	2.690526
70-74	72	45	3.168222
75-79	77	34	2.746471
80-84	82	40	3.39425
85-89	87	45	3.231333
90-94	92	52	3.173654
95-99	97	62	3.32129
100-104	102	56	2.570714
105-109	107	48	3.191458
110-114	112	43	2.743721
115-119	117	22	3.322727
120-124	122	5	3.52

**Sample  
Size: 646**

# ESL LISTENING

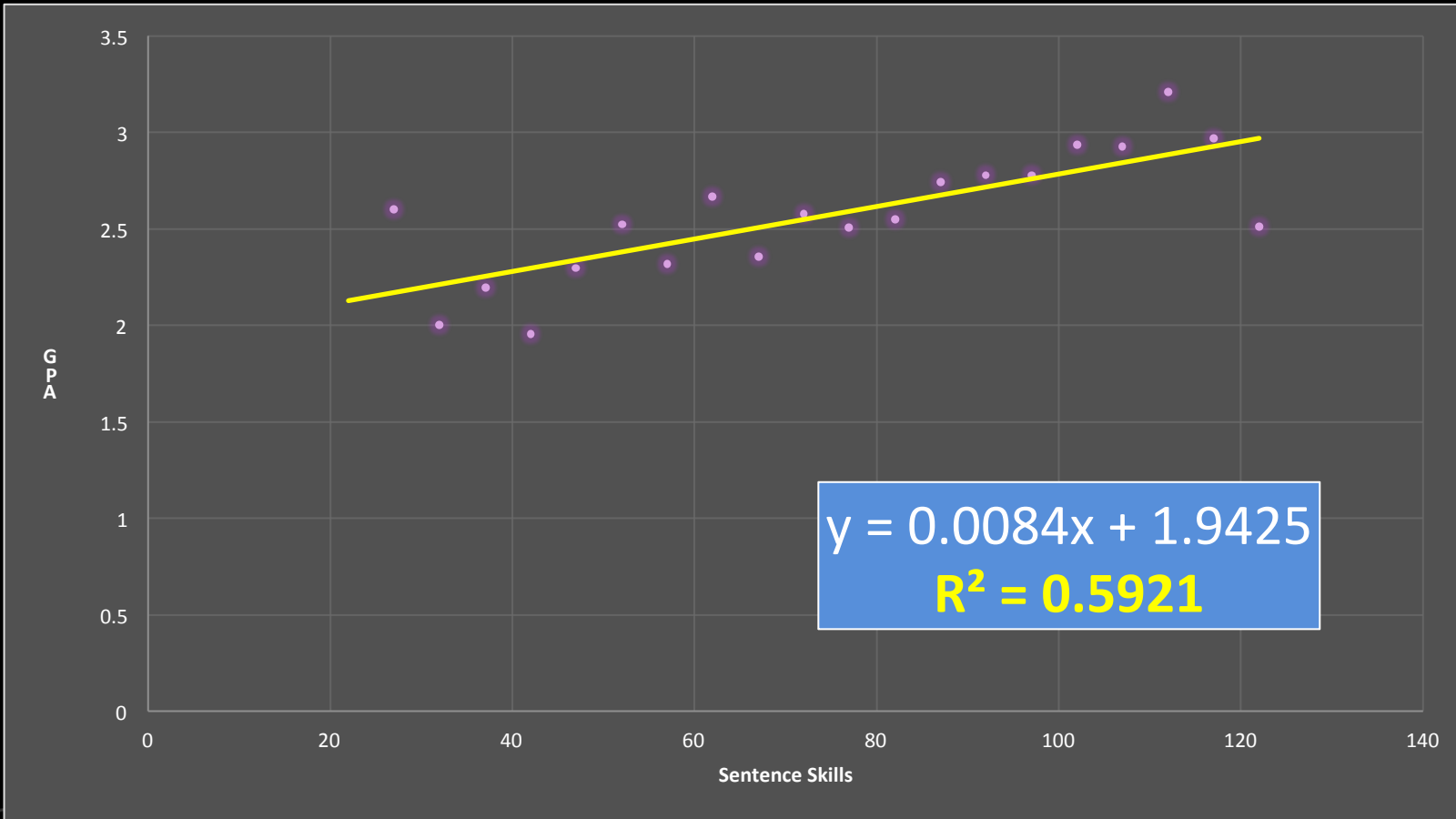


<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	9	
25-29	27	1	
30-34	32	3	
35-39	37	3	
40-44	42	15	2.303333
45-49	47	30	1.682222
50-54	52	30	2.48
55-59	57	42	2.782381
60-64	62	63	3.141587
65-69	67	71	3.089437
70-74	72	80	2.927375
75-79	77	109	3.049266
80-84	82	69	3.013333
85-89	87	57	3.095263
90-94	92	29	3.017407
95-99	97	22	2.527727
100-104	102	10	3.373333
105-109	107	6	2.826667
110-114	112	5	3.823333
115-119	117	1	3.23
120-124	122	9	3.56

Sample  
Size:

664

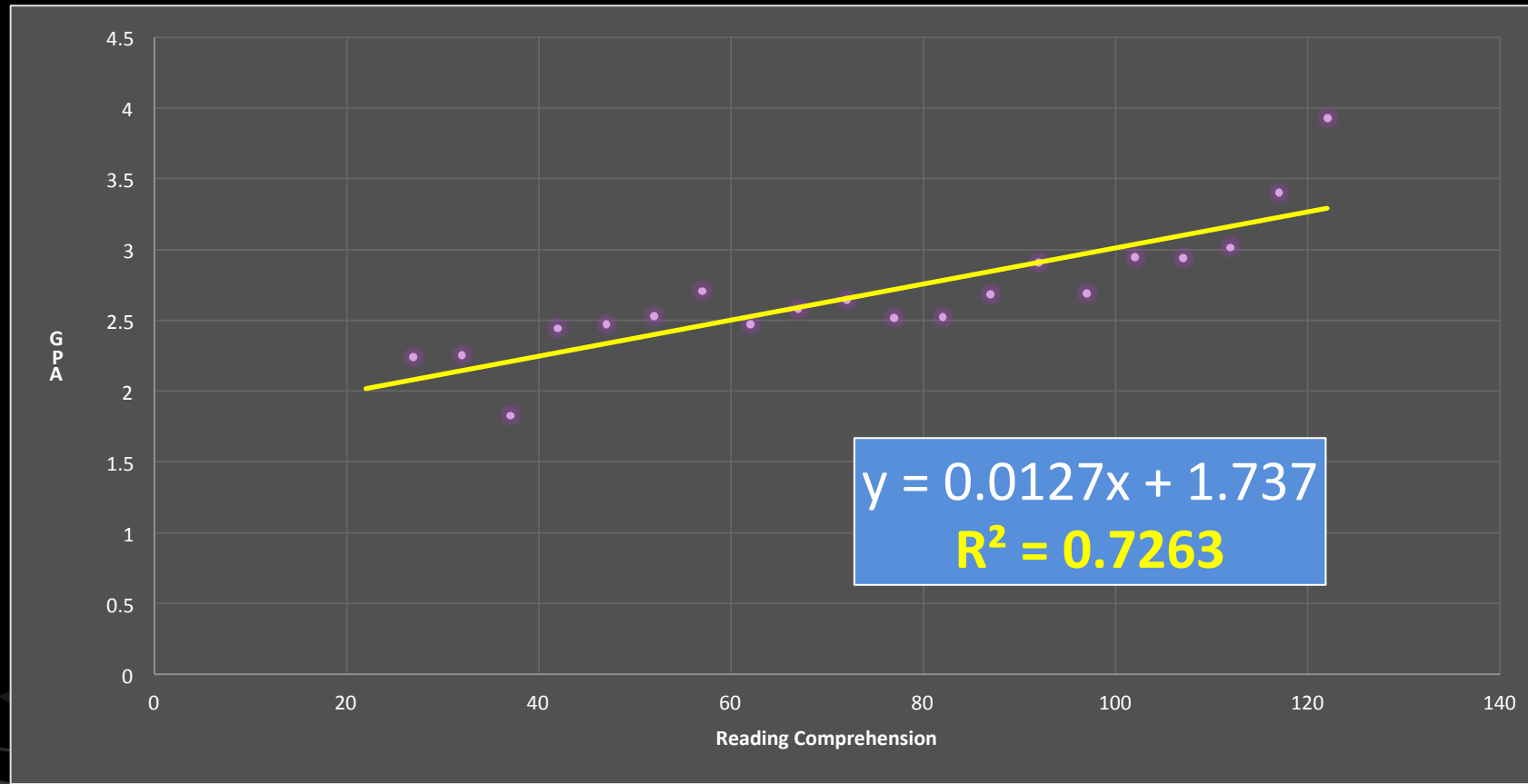
# SENTENCE SKILLS



**Sample Size: 4347**

Bin	Midpoint	St. Count	AGPA
20-24	22	0	
25-29	27	23	2.6
30-34	32	41	2.000976
35-39	37	92	2.19337
40-44	42	145	1.957103
45-49	47	181	2.298453
50-54	52	227	2.522379
55-59	57	268	2.315858
60-64	62	294	2.667925
65-69	67	342	2.356257
70-74	72	357	2.575658
75-79	77	389	2.507892
80-84	82	381	2.54769
85-89	87	363	2.740523
90-94	92	359	2.778747
95-99	97	254	2.778465
100-104	102	179	2.933911
105-109	107	157	2.928217
110-114	112	162	3.20963
115-119	117	105	2.96581
120-124	122	28	2.51

# READING COMPREHENSION



**Student  
Count**    **4362**

<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	99	2.242727
30-34	32	174	2.254935
35-39	37	168	1.828988
40-44	42	170	2.440941
45-49	47	189	2.468571
50-54	52	216	2.53
55-59	57	232	2.709181
60-64	62	242	2.472355
65-69	67	309	2.575049
70-74	72	359	2.647437
75-79	77	322	2.513634
80-84	82	361	2.521579
85-89	87	345	2.684435
90-94	92	318	2.906195
95-99	97	276	2.692174
100-104	102	198	2.947121
105-109	107	188	2.939521
110-114	112	117	3.016923
115-119	117	65	3.402
120-124	122	14	3.93

# SUMMARY

Accuplacer Test	Sample Size	Bins with Reported GPA	Correlation Coefficient	-value	Score correlated with GPA 2.0
College Level Math	11	3	0.7494	.46068	-
Elementary Alg.	51	13	0.5191	.06909	-
Arithmetic	143	15	0.0843	.76517	-
ESL Sentence	628	17	0.0592	.82144	-
ESL Reading	632	20	0.4523	.04525	-
ESL Language	642	19	0.5987	.00676	-12.412
ESL Listening	664	17	0.7130	.00131	15.321
Sentence Skills	4347	20	0.7695	.00007	6.845
Reading Comprehension	4362	20	0.8522	<0.00001	20.709

# CONCLUSIONS?

- **Four of the Nine tests produced statistically-significant correlations with GPA.**
- Among those four:
- **All of them correlate a higher Accuplacer score with a higher GPA.**
- **All of them predict any taker will have a GPA of 2.0 or higher.**
  - However, remember that no weighting/distinction between classes taken is being considered.
  - This can, simply, be affirmation they're taking classes they're likely to succeed in.
- **On each, an increase of 1 point on Accuplacer predicts an increase of ~0.01 GPA**
  - Hence, an approximate 1.0 GPA "jump" from the minimum score (20) to the Maximum Score (120).
- **The Correlation strengthens with larger sample size—data collection should continue.**



# CAN WE POLISH?

- The “*muddiness*” of this data is troublesome.
  - The assumption that GPA is universal across Curricula *is likely faulty*.
  - Accuplacer takers are more uniform than general students, but apparently they *take a diverse set of classes*.

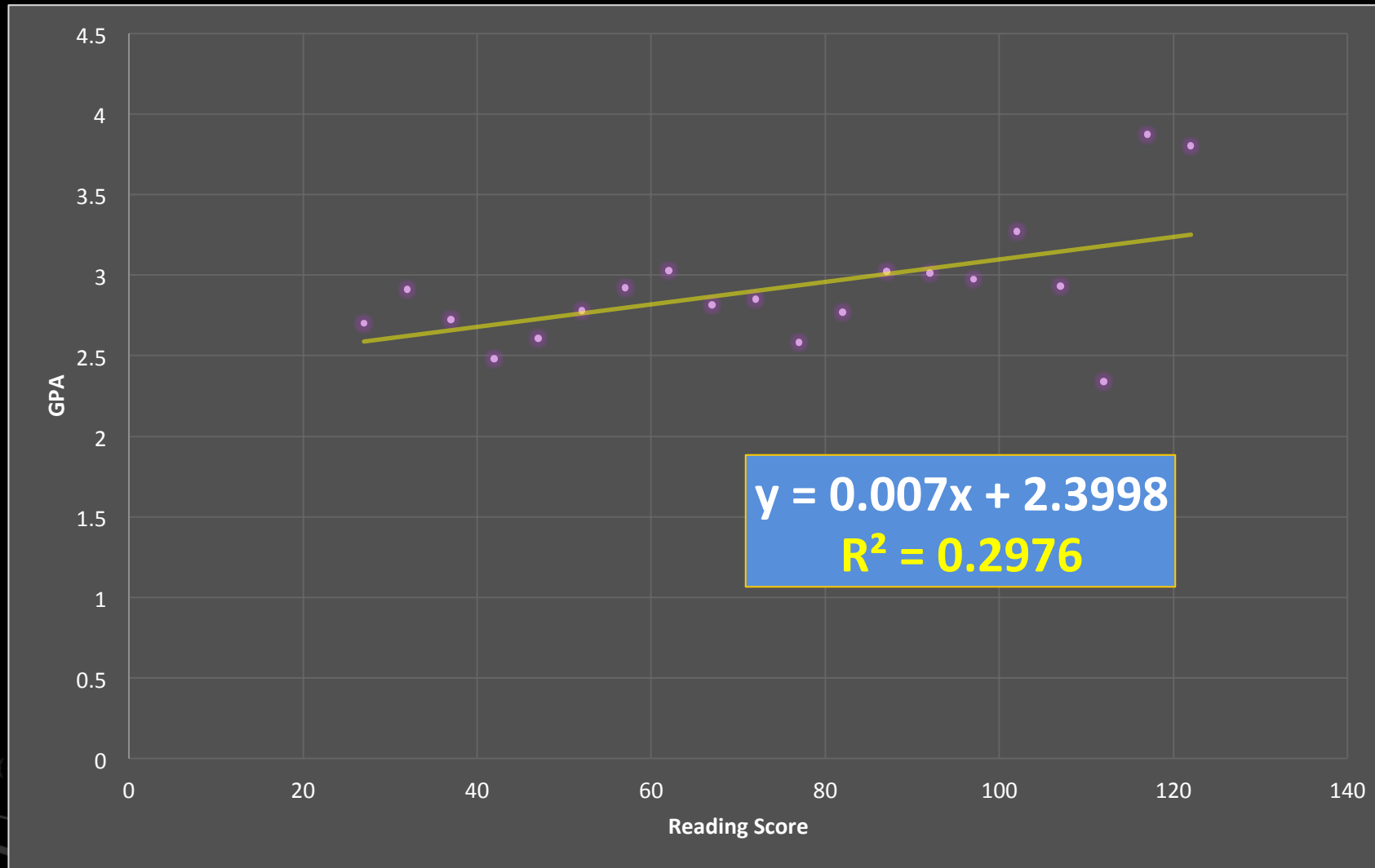
Research Question : Are the Reading and Sentence Skills exam predictive of GPA for Students *taking non-developmental coursework?*

- *Process:*
  - *Select common 100+ level classes for these students*
  - *Trim the data sets down to just the students taking those classes*
  - *Reanalyze and maybe the “muddy” trend will “clear up”.*

# SPECIFICS

- The Classes:
  - The most commonly taken 100-level classes for Accuplacer students:
    - **ENG 105** : Composition I
    - **PSY 111** : Introduction to Psychology
    - **SOC 110** : Introduction to Sociology
  - Thankfully, these are also typical first semester classes.
- The students were analyzed in the following groups under the same methodology:
  - **Students who took All 3 courses**
  - **Students who took PSY105 & SOC110**
  - **Students who took ENG105 only**

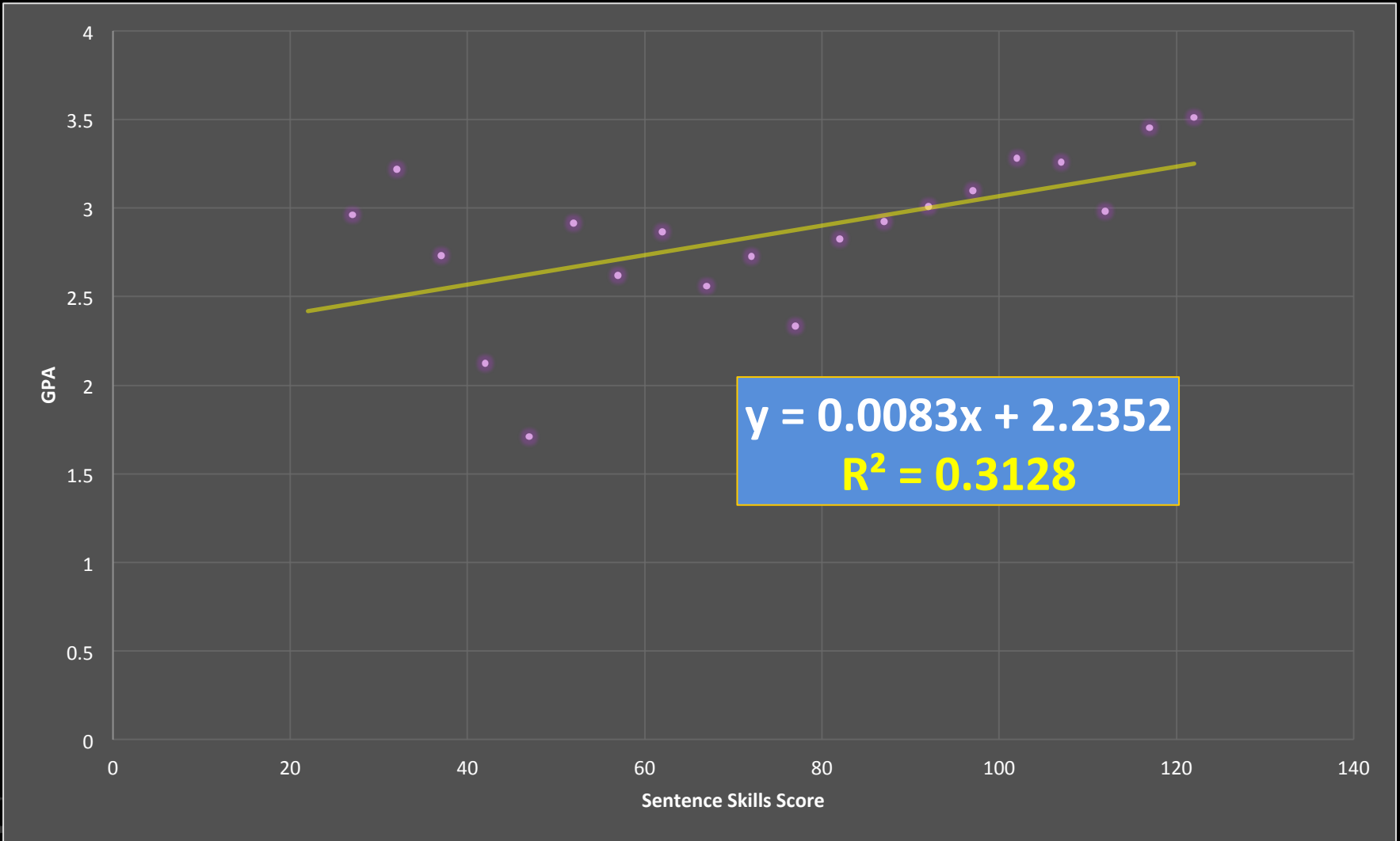
# READING COMPREHENSION – ENG/SOC/PSY



<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	2	2.7
30-34	32	4	2.915
35-39	37	9	2.722222
40-44	42	12	2.481667
45-49	47	11	2.61
50-54	52	14	2.780714
55-59	57	20	2.923
60-64	62	18	3.025556
65-69	67	29	2.813448
70-74	72	32	2.850625
75-79	77	34	2.582059
80-84	82	29	2.771034
85-89	87	33	3.023333
90-94	92	30	3.014
95-99	97	26	2.974615
100-104	102	14	3.269286
105-109	107	9	2.93
110-114	112	3	2.336667
115-119	117	1	3.87
120-124	122	1	3.80

**Student Count**  
**331**

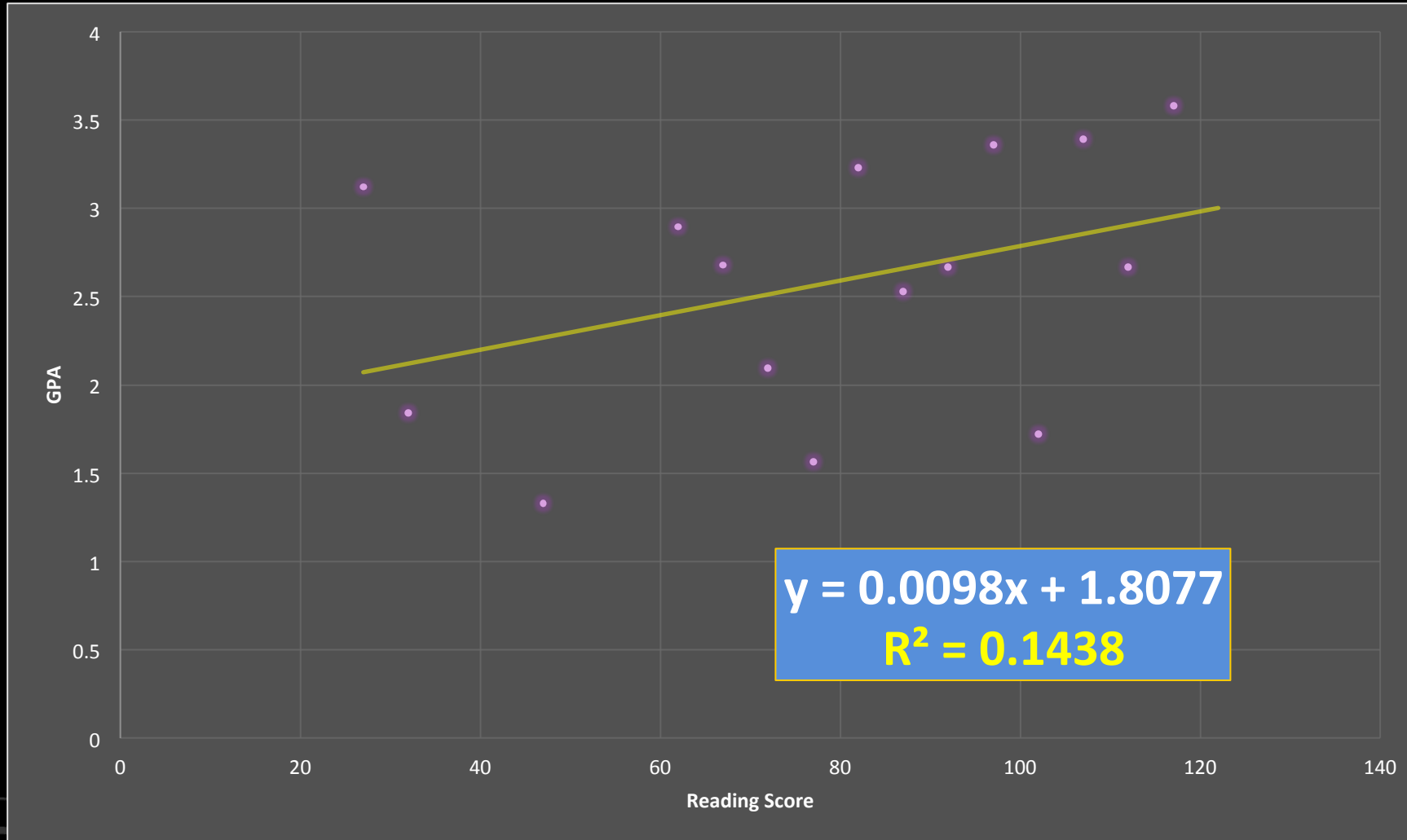
# SENTENCE SKILLS— ENG/SOC/PSY



<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	1	2.96
30-34	32	1	3.22
35-39	37	3	2.73
40-44	42	4	2.125
45-49	47	11	1.708182
50-54	52	14	2.913571
55-59	57	20	2.617
60-64	62	20	2.8655
65-69	67	29	2.55931
70-74	72	38	2.729211
75-79	77	46	2.333043
80-84	82	36	2.826389
85-89	87	35	2.922571
90-94	92	29	3.008276
95-99	97	18	3.097222
100-104	102	16	3.281875
105-109	107	14	3.259286
110-114	112	8	2.9825
115-119	117	4	3.4525
120-124	122	2	3.51

**Student Count**      **349**

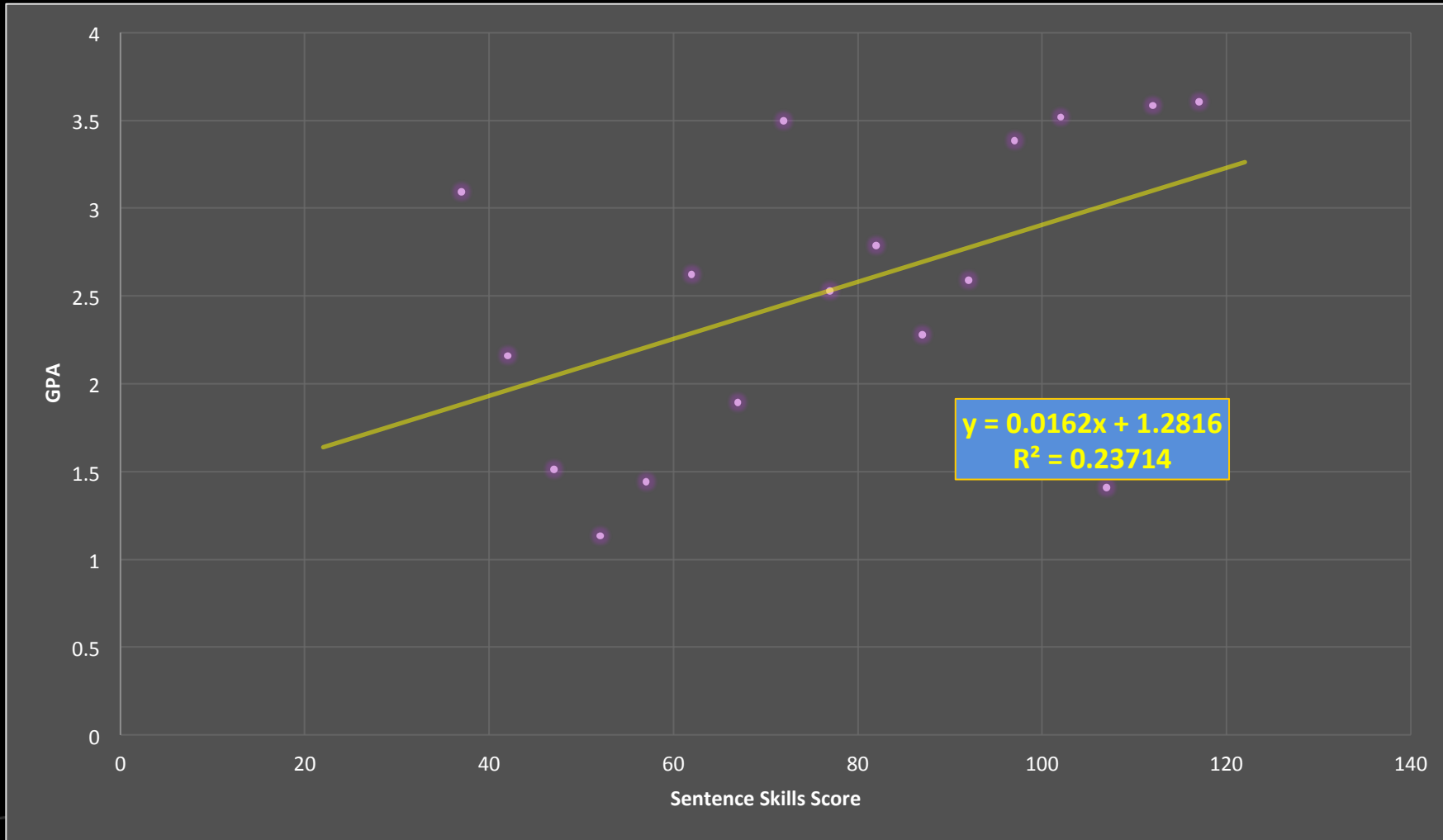
# READING COMPREHENSION –SOC/PSY



<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	2	3.12
30-34	32	2	1.84
35-39	37	0	
40-44	42	0	
45-49	47	2	1.33
50-54	52	0	
55-59	57	1	
60-64	62	2	2.895
65-69	67	3	2.68
70-74	72	8	2.09375
75-79	77	4	1.565
80-84	82	6	3.23
85-89	87	8	2.53
90-94	92	4	2.665
95-99	97	5	3.358
100-104	102	5	1.722
105-109	107	3	3.39
110-114	112	3	2.666667
115-119	117	1	3.58
120-124	122	0	

<b>Student Count</b>	<b>59</b>
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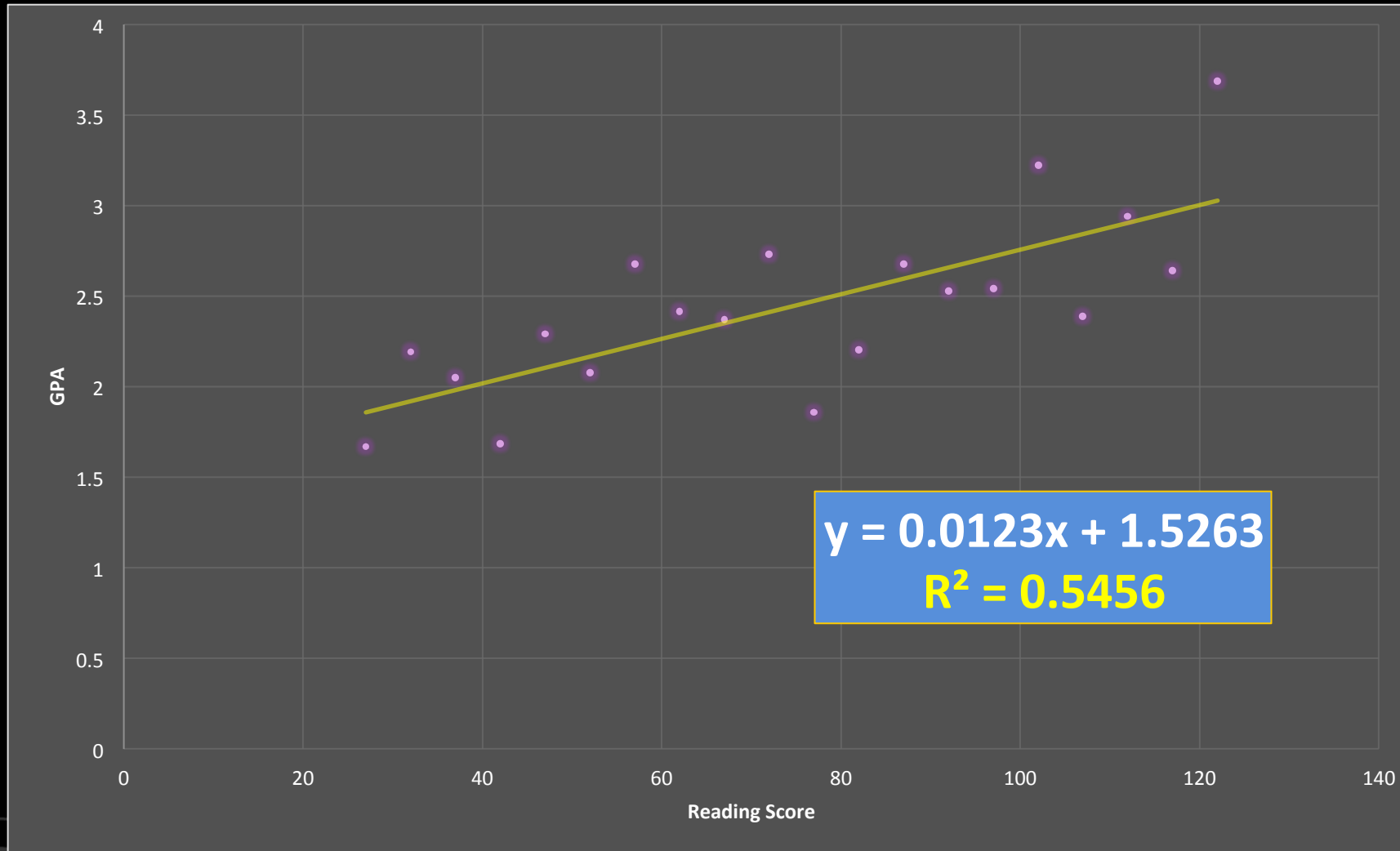
# SENTENCE SKILLS – SOC/PSY



<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	0	
30-34	32	0	
35-39	37	1	3.09
40-44	42	1	2.16
45-49	47	2	1.51
50-54	52	3	1.133333
55-59	57	2	1.44
60-64	62	2	2.625
65-69	67	4	1.895
70-74	72	2	3.5
75-79	77	6	2.53
80-84	82	9	2.788889
85-89	87	6	2.278333
90-94	92	10	2.59
95-99	97	3	3.383333
100-104	102	3	3.516667
105-109	107	3	1.41
110-114	112	4	3.5825
115-119	117	2	3.605
120-124	122	0	

<b>Student Count</b>	<b>63</b>
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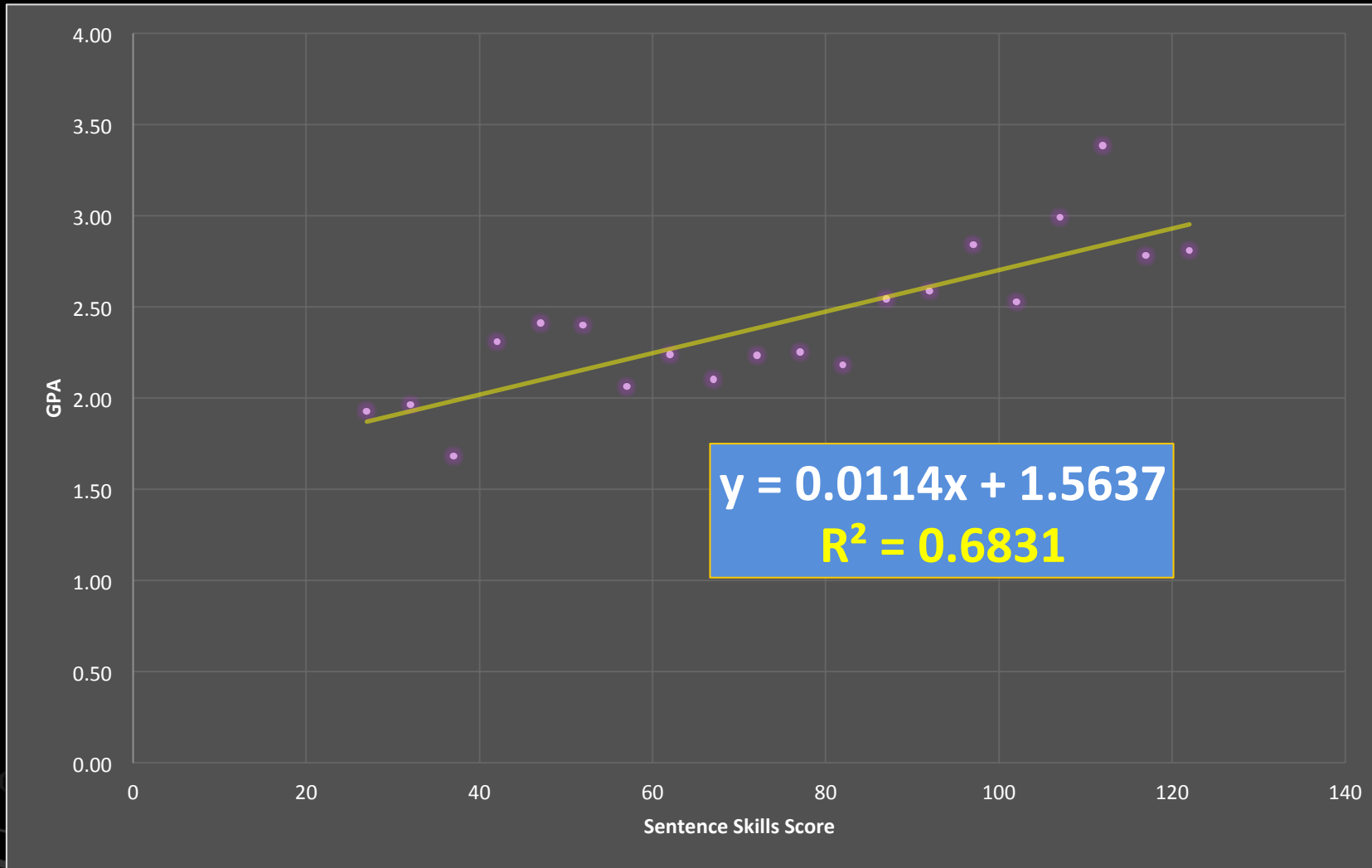
# READING COMPREHENSION – ENG ONLY



<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	6	1.67
30-34	32	16	2.1925
35-39	37	13	2.050769
40-44	42	21	1.685238
45-49	47	18	2.29
50-54	52	20	2.0795
55-59	57	28	2.678214
60-64	62	32	2.41625
65-69	67	29	2.371034
70-74	72	43	2.731628
75-79	77	44	1.859318
80-84	82	53	2.203585
85-89	87	48	2.675625
90-94	92	35	2.528857
95-99	97	36	2.543056
100-104	102	27	3.224815
105-109	107	31	2.388387
110-114	112	19	2.941579
115-119	117	14	2.640714
120-124	122	6	3.69

**Student Count**  
**539**

# SENTENCE SKILLS— ENG ONLY



<u>Bin</u>	<u>Midpoint</u>	<u>St. Count</u>	<u>AGPA</u>
20-24	22	0	
25-29	27	3	1.93
30-34	32	6	1.96
35-39	37	7	1.68
40-44	42	15	2.31
45-49	47	15	2.41
50-54	52	21	2.40
55-59	57	22	2.06
60-64	62	29	2.24
65-69	67	39	2.10
70-74	72	36	2.24
75-79	77	49	2.25
80-84	82	58	2.18
85-89	87	43	2.54
90-94	92	55	2.59
95-99	97	33	2.84
100-104	102	22	2.53
105-109	107	30	2.99
110-114	112	29	3.38
115-119	117	21	2.78
120-124	122	5	2.81

**Student Count**  
**538**



# SUMMARY

Accuplacer Test	Sample Size	Bins with Reported GPA	Correlation Coefficient	-value	Score correlated with GPA 2.0
PSY/ENG/SOC - RS	331	20	.5455	.01286	-57.114
PSY/ENG/SOC - SS	349	20	.5593	.01035	-28.337

PSY/SOC - RS	59	15	.3792	.16333	-
PSY/SOC - SS	63	17	.4869	.04746	-

ENG - RS	539	20	.7386	0.0002	38.512
ENG - SS	538	20	.8265	<0.00001	38.272

## CONCLUSIONS – ROUND 2?

- **Four of the Six tests produced statistically-significant correlations with GPA.**
  - **Pretty encouraging, given the reduced sample sizes.**
- Among these four:
- The Data from takers of All three is still **“too muddy”**
- **The small sample size from *Psychology and Sociology* prevents utility.**
- **But, there’s a bright side: the English-only data set has a *strong & useful* correlation!**
  - In it, a 2.0 GPA correlates with a Score of  $\approx 38$  on either exam.
  - This is our ***first meaningful correlated score!***

So, uhh, what now?!

# Changes?!

- Well, maybe our fundamental question needs to change:

What if an Entrance Exam  
doesn't Predict anything?!

- First, we had meetings with the Deans.
  - And meetings with the Program Chairs.
  - ...and more meetings.
- Our administration has spoken fairly clearly: *Barriers must be meaningful, not arbitrary*
- **For Students in AA programs: Accuplacer is an advising tool.**
  - *So, we continue collecting data and re-calibrate our recommendations.*
- **For Students in Career & Technical Programs : There are Accuplacer Cut Scores for Admission**
  - *Uh oh.*
  - *Something must change.*

# CAREER & TECHNICAL PROGRAM RESPONSE

- Opinions have run the usual spectrum:
  - “Pretend it isn’t happening”, “Wait and See” , “You tell us...” and, the rarest of the rare:
    - **“We’re already doing something!”**
- Wait, what?!
- Our *Automotive Technology* program is already taking this into their hands:
  - **All admissions testing standards have been removed**
  - *The tests, however, are **still being given** to all applicants*
  - *Students are admitted based around a set of other **non-Test-score-based Multiple Measures***
  - **Data** will be tracked for three years, monitoring program success (including graduation)
  - *Afterwards, a full investigation will be made, and Tests’ utility (or non-utility) will be determined.*

*If only all of our Programs were that forward-thinking!*

# RECOMMENDATIONS FOR *YOU*

- Ask the questions:

What is our Entrance Exam *supposed to do?!?*

*Is it doing that?!?*

- **Analyze your Data.**
  - (That messy part everyone likes to gloss over)
- Be ready for the answers
  - They may not be what you want to hear!
- **Remove Barriers that don't serve their purpose**
  - ...But, continue collecting data.

Make sensible *data-based* changes!

