

# Arkansas Department of Education

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## Academic Shortage Areas for 2016-2017



# Arkansas Academic Shortage Areas

- Each year the US Dept. of Education asks states to identify academic teacher Shortage Areas.
- These Shortage Areas are established as areas of need in Arkansas Public Schools.
- Teachers who prepare for, and license, in Shortage Areas may be eligible for financial incentives.
  - In accordance with the DOE request teachers may achieve financial benefits such as loan cancellation within the regulations of the Stafford Loan Program, the TEACH\* Grant Program and/or Federal Perkins loans.

\*Teacher Education Assistance for College and Higher Education



# Arkansas Academic Shortage Areas

The Arkansas Department of Education designated the following as critical academic shortage areas\* for the 2016-2017 school year.

- Agriculture Science & Technology
- Art
- Computer Science
- Family and Consumer Science
- French
- Library Media
- Mathematics
- Physical Science (Chemistry, Physics)
- Spanish
- Special Education

\* Pursuant to A.C.A. § 6-81-601 et seq. and A.C.A. § 6-85-109



# Arkansas Academic Shortage Areas

- The ADE uses a 'Supply and Demand' formula to establish Shortage Areas, incorporating the following factors.
- Supply (incoming pipeline):
  - The numbers of students in educator preparation programs (preparing for licenses).
  - The numbers of licenses issued to educators (for the first time).
- Demand (need for teachers):
  - The numbers of classes being taught by long-term subs or teachers out of area (on waivers).
  - The retirement or potential retirement of teachers in each license area (based on age and years towards retirement).



# Shortage Area Calculation Definitions

Area	# of Teachers in Area (TIA)	Preparing for the workforce			Potential new hires			Immediate need - Vacancies, Subs			Immediate need - Waivers			Potential for need in the near future			Total Score
		Preparing for the license	Preparing as % of TIA	Preparing Score	First-time licensed in area	FTL as % of TIA	FTL Score	# V/S	V/S as % of TIA	V/S Score	# Waivers	Waivers as % of TIA	Waiver Score	# who are Veteran	Veteran as % of TIA	Veteran Score	
Example Subject	77	4	5.19%	5.19	2	2.60%	2.60	1	1.30%	12.99	2	2.60%	2.60	10	12.99%	12.99	79

- **Preparing** – Those preparing to be licensed in the area (i.e., enrolled in educator preparation programs).
- **Potential New Hires** – Those who were newly licensed (received the license for the first time) in the license area.
- **Vacancies/Subs** – Those classes taught by long-term substitute teachers.
- **Waivers** – Those classes taught by teachers teaching out of their area of licensure.
- **Potential Need (Veterans)** – The number who retired the previous year or are expected to retire in the near future.



# Shortage Area Calculation **Definitions**

- To define a Veteran for the purpose of this project, according to Arkansas Teacher Retirement System:
  - The average age of retirees is 61.
  - The average years towards retirement is 23.
- Therefore a Veteran is defined as:
  - One who retired in the last year, or one whose **age plus years towards retirement** equals **84** or greater.
- $61 + 23 = 84$



# Shortage Area Score Criteria

Area	# of Teachers in Area (TIA)	Preparing for the workforce			Potential new hires			Immediate need - Vacancies, Subs			Immediate need - Waivers			Potential for need in the near future			Total Score
		Preparing for the license	Preparing as % of TIA	Preparing Score	First-time licensed in area	FTL as % of TIA	FTL Score	# V/S	V/S as % of TIA	V/S Score	# Waivers	Waivers as % of TIA	Waiver Score	# who are Veteran	Veteran as % of TIA	Veteran Score	
Example Subject	77	4	5.19%	5.19	2	2.60%	2.60	1	1.30%	12.99	2	2.60%	2.60	10	12.99%	12.99	79

- The number of teachers in each area (TIA) was the basis for calculations.
- Each score was devised by the number of educators in each factor calculated as % of TIA.
- Factors were given a score accordingly.
  - The score for Vacancies/Subs, which was much smaller than other factors, but highly significant, was weighted by a factor of ten.
- **Positive** factors (# preparing and # of first-time licensed) were compiled and **added to** the standard of 100.
- **Negative** factors (Vacancies, Waivers, Veterans) were compiled and **subtracted from** the standard.
- **Scores less than 100 indicated the need was greater than the supply.**



# Arkansas Supply and Demand Table

Area	# of Teachers in Area (TIA)	Preparing for the workforce			Potential new hires			Immediate need - Vacancies, Subs			Immediate need - Waivers			Potential for need in the near future			Total Score	
		Preparing for the license	Preparing as % of TIA	Preparing Score	First-time licensed in area	FTL as % of TIA	FTL Score	# V/S	V/S as % of TIA	V/S Score	# Waivers	Waivers as % of TIA	Waiver Score	# who are Veteran	Veteran as % of TIA	Veteran Score		
French	77	4	5.19%	5.19	2	2.60%	2.60	1	1.30%	12.99	2	2.60%	2.60	10	12.99%	12.99	<b>79</b>	
Art	915	86	9.40%	9.40	68	7.43%	7.43	23	2.51%	25.14	16	1.75%	1.75	94	10.27%	10.27	<b>80</b>	
Special Education	2,795	526	18.82%	18.82	365	13.06%	13.06	65	2.33%	23.26	415	14.85%	14.85	359	12.84%	12.84	<b>81</b>	
Fam & Cons Sci	576	42	7.29%	7.29	69	11.98%	11.98	13	2.26%	22.57	10	1.74%	1.74	57	9.90%	9.90	<b>85</b>	
Agriculture	294	27	9.18%	9.18	33	11.22%	11.22	8	2.72%	27.21	0	0.00%	0.00	23	7.82%	7.82	<b>85</b>	
Physical Science (Physics, Chemistry)	784	56	7.14%	7.14	140	17.86%	17.86	16	2.04%	20.41	37	4.72%	4.72	87	11.10%	11.10	<b>89</b>	
Library	968	163	16.84%	16.84	105	10.85%	10.85	5	0.52%	5.17	100	10.33%	10.33	178	18.39%	18.39	<b>94</b>	
Mathematics	1,698	177	10.42%	10.42	136	8.01%	8.01	25	1.47%	14.72	41	2.41%	2.41	115	6.77%	6.77	<b>95</b>	
Spanish	389	34	8.74%	8.74	37	9.51%	9.51	5	1.29%	12.85	5	1.29%	1.29	37	9.51%	9.51	<b>95</b>	
Drama/Speech	507	37	7.30%	7.30	87	17.16%	17.16	4	0.79%	7.89	37	7.30%	7.30	47	9.27%	9.27	<b>100</b>	
Journalism	280	30	10.71%	10.71	36	12.86%	12.86	0	0.00%	0.00	30	10.71%	10.71	32	11.43%	11.43	<b>101</b>	
Middle Childhood	7,407	586	7.91%	7.91	663	8.95%	8.95	42	0.57%	5.67	125	1.69%	1.69	573	7.74%	7.74	<b>102</b>	
English / LA	1,734	267	15.40%	15.40	228	13.15%	13.15	29	1.67%	16.72	12	0.69%	0.69	154	8.88%	8.88	<b>102</b>	
Social Studies	1,565	212	13.55%	13.55	211	13.48%	13.48	17	1.09%	10.86	50	3.19%	3.19	164	10.48%	10.48	<b>102</b>	
Marketing	80	3	3.75%	3.75	10	12.50%	12.50	0	0.00%	0.00	0	0.00%	0.00	9	11.25%	11.25	<b>105</b>	
Elementary	11,039	1,008	9.13%	9.13	1163	10.54%	10.54	49	0.44%	4.44	67	0.61%	0.61	903	8.18%	8.18	<b>106</b>	
Counseling	1,311	327	24.94%	24.94	120	9.15%	9.15	2	0.15%	1.53	104	7.93%	7.93	225	17.16%	17.16	<b>107</b>	
Music	1,378	177	12.84%	12.84	177	12.84%	12.84	8	0.58%	5.81	11	0.80%	0.80	147	10.67%	10.67	<b>108</b>	
Phys Ed / Health	2,923	295	10.09%	10.09	351	12.01%	12.01	4	0.14%	1.37	50	1.71%	1.71	268	9.17%	9.17	<b>110</b>	
Gifted - Talented	494	219	44.33%	44.33	70	14.17%	14.17	0	0.00%	0.00	140	28.34%	28.34	86	17.41%	17.41	<b>113</b>	
Business	1,334	105	7.87%	7.87	369	27.66%	27.66	12	0.90%	9.00	21	1.57%	1.57	128	9.60%	9.60	<b>115</b>	
Life Science	762	159	20.87%	20.87	155	20.34%	20.34	3	0.39%	3.94	15	1.97%	1.97	69	9.06%	9.06	<b>126</b>	
Bldg Level Admin	1,764	944	53.51%	53.51	360	20.41%	20.41	0	0.00%	0.00	51	2.89%	2.89	296	16.78%	16.78	<b>154</b>	
District Level Admin	614	556	90.55%	90.55	79	12.87%	12.87	0	0.00%	0.00	13	2.12%	2.12	173	28.18%	28.18	<b>173</b>	
Reading	74	90	121.62%	121.62	64	86.49%	86.49	8	10.81%	108.11	0	0.00%	0.00	16	21.62%	21.62	<b>178</b>	
Computer Science	new requirement for '15-'16				xxxxx			xxxxx				xxxxx			xxxxx			<b>xxx</b>



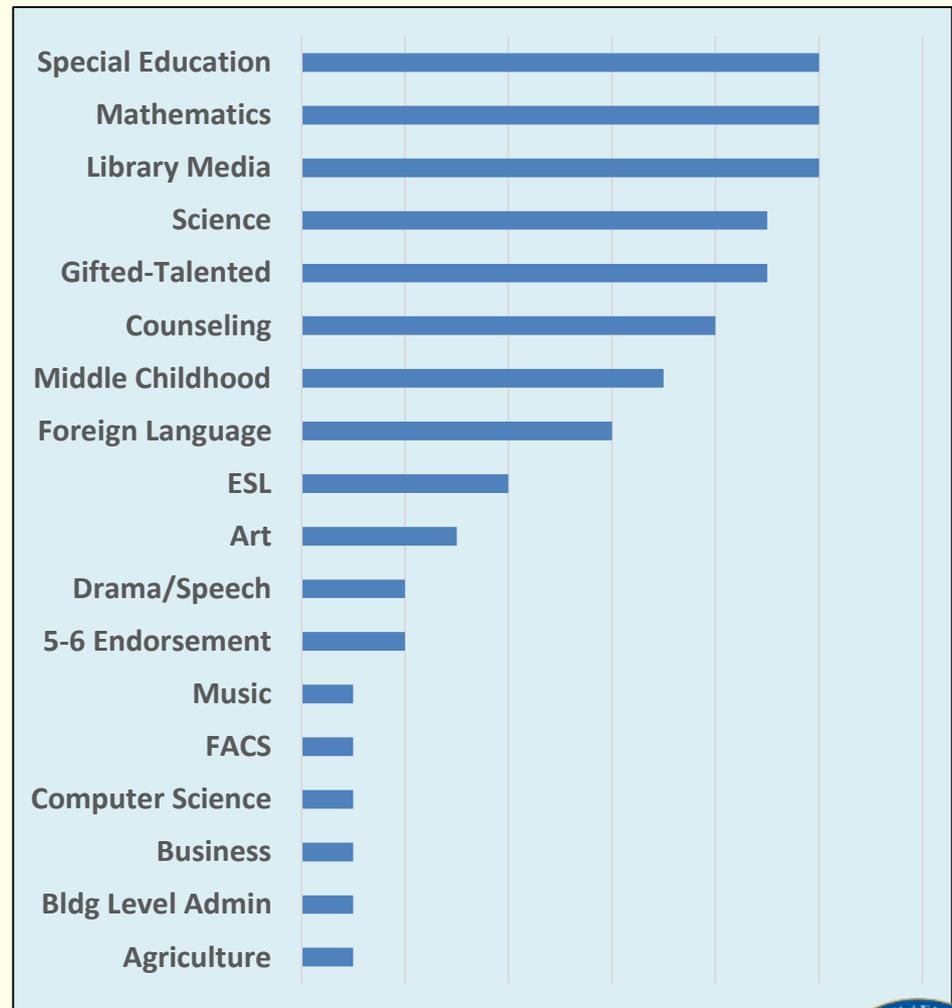
# Arkansas Shortage Areas - December 2015

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Computer Science	new requirement for '15-'16				<b>xxx</b>			<b>xxx</b>			<b>xxx</b>			<b>xxx</b>			<b>xxx</b>



# Frequency ( $f$ ) of License Areas as Shortage Areas

License Area	$f$ '07-08 thru '16-17
Special Education	10
Mathematics	10
Library Media	10
Science	9
Gifted-Talented	9
Counseling	8
Middle Childhood	7
Foreign Language	6
ESL	4
Art	3
Drama/Speech	2
5-6 Endorsement	2
Music	1
FACS	1
Computer Science	1
Business	1
Bldg. Level Admin.	1
Agriculture	1



# License Areas as Shortage Areas by School Year

Area	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17
Library Media	X	X	X	X	X	X	X	X	X	X
Mathematics	X	X	X	X	X	X	X	X	X	X
Special Education	X	X	X	X	X	X	X	X	X	X
Gifted-Talented	X	X	X	X	X	X	X	X	X	
Science	X	X	X	X	X	X	X	X		Phys, Chem
Counseling	X	X	X	X	X	X	X	X		
Middle Childhood	X	X	X	X	X	X		X		
Foreign Language	X	X	X		X				X	Fr, Sp
ESL				X	X	X	X			
Art	X								X	X
5-6 Endorsement				X	X					
Drama/Speech		X							X	
Agriculture										X
Bldg Level Admin					X					
Business								X		
FACS										X
Music								X		
Computer Science										X



# Shortage Areas and Percentage on Waivers

License Area	3-yr ALP Total	3-yr ALP Avg.	# Teachers in Area	Avg. ALPs as % of TIA
<b>Special Education</b>	1,287	429	2,795	<b>15.35%</b>
<b>Library Media</b>	264	88	968	<b>9.09%</b>
<b>Science</b>	155	52	784	<b>6.59%</b>
Mathematics	136	45	1,698	2.67%
Art	59	20	915	2.15%
FACS	23	8	576	1.33%
Agriculture	1	0	294	0.11%
French	Only one	2	77	2.60%
Spanish	year of data	5	389	1.29%

- Over the last 3 years,  $\approx$  15% of those teaching **Special Education**,  $\approx$  9% of those in **Library Media**, and  $\approx$  7% of **Science** teachers were all teaching on a waiver (ALP).

# Veteran status of Educators in **All License Areas**

On the average  $\approx 10\%$  of the Arkansas Educator workforce fits the 'Veteran' definition. 14 of the 25 license areas below are  $> 10\%$ .

Area	% Veteran	> 10%
District Level Admin. **	28.18%	√
Reading **	21.62%	√
Library **	18.39%	√
Gifted - Talented **	17.41%	√
Counseling	17.16%	√
Bldg. Level Admin. **	16.78%	√
French	12.99%	√
Special Education	12.84%	√
Journalism **	11.43%	√
Marketing	11.25%	√
Physical Science (Physics, Chemistry)	11.10%	√
Music	10.67%	√

Area	% Veteran	> 10%
Social Studies	10.48%	√
Art	10.27%	√
Fam. & Cons. Sci.	9.90%	
Business	9.60%	
Spanish	9.51%	
Drama/Speech	9.27%	
Phys Ed / Health	9.17%	
Life Science	9.06%	
English / LA	8.88%	
Elementary (P-4)	8.18%	
Agriculture	7.82%	
Middle Childhood (5-8)	7.74%	
Mathematics	6.77%	

Shortage Area
** = requires a prior license

√ =  $> 10\%$



# Percentage of “newly licensed” Educators

Newly licensed (or new to the area) refers to a those who, in the past year, have received the license in the area for the first time.

Area	% newly licensed
French	2.60%
Art	7.43%
Mathematics	8.01%
Middle Childhood (5-8)	8.95%
Counseling	9.15%
Spanish	9.51%
Elementary (P-4)	10.54%
Library **	10.85%
Agriculture	11.22%
Fam & Cons Sci	11.98%
Phys Ed / Health	12.01%
Marketing	12.50%

Area	% newly licensed
Music	12.84%
Journalism **	12.86%
District Level Admin. **	12.87%
Special Education	13.06%
English / LA	13.15%
Social Studies	13.48%
Gifted - Talented **	14.17%
Drama/Speech	17.16%
Physical Science (Physics, Chemistry)	17.86%
Life Science	20.34%
Bldg. Level Admin. **	20.41%
Business	27.66%
Reading **	86.49%

<b>Shortage Area</b>
** = requires a prior license



# Numbers of Educators vs Positions

	Shortage Areas	Non-Shortage Areas
<b><u>Educators Available</u></b> Sum of those preparing plus newly licensed	2,070	9,158
<b><u>Positions Available</u></b> Sum of Vacancies, Waivers and Veterans	1,747	4,194
<b><u>Ratio Persons to Positions</u></b>	<b>1.2 to 1</b>	<b>2.2 to 1</b>

There are about half as many educators available (per position) in shortage areas as there are in non-shortage areas (a ratio of 1.2 to 1 vs 2.2 to 1).



# Numbers of Educators vs Positions

<b>Another way of looking at this:</b>	<b>Shortage Areas</b>	<b>Non-Shortage Areas</b>
<b><u>Educators Preparing</u></b>	1,115	5,015
<b><u>Positions Available</u></b>	1,747	4,194
<b><u>% of Persons to Positions</u></b>	<b>63%</b>	<b>120%</b>

The number of students preparing for licenses in shortage areas is equal to only 63% of the number of positions available.

While the number of students preparing for licenses in non-shortage areas is equal to 120% of the number of positions available.



# Conclusion

These data clearly indicate that there are some areas in which teacher shortages exist.

The Arkansas Department of Education is working diligently to address these areas and ensure that the annual Demand for educators is met with a sufficient Supply of qualified and effective educators.



# Contact Information

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