

STATE BOARD OF EDUCATION
Consent Item
February 16, 2017

SUBJECT: Approval of Critical Teacher Shortage Areas for 2017-18

PROPOSED BOARD ACTION

For Approval

AUTHORITY FOR STATE BOARD ACTION

Section 1012.07, Florida Statutes, and Rule 6A-20.0131(2), F.A.C.

EXECUTIVE SUMMARY

Florida Statutes require the State Board of Education to approve areas of critical teacher shortage. State Board Rule requires the Commissioner to recommend specific projected public school teacher shortage areas for the next academic year.

This report identifies which certification areas are facing an unmet need of certified teachers using current data on teacher supply and demand.

Each fall the Department of Education surveys school districts to determine the number of teaching positions filled that fall, the number of vacancies, and the number of courses being taught by inappropriately certified teachers. In addition, teacher preparation programs provide the number of new completers and their certification area. The survey results and information from teacher preparation programs provide three indicators of certification areas currently facing critical shortages. The Department ranks each indicator and then averages them across three types of shortage data to provide a final ranking.

Based on these indicators, the Commissioner recommends that the State Board approve the identification of the following fields as critical shortage areas for 2017-2018:

- English
- Mathematics
- Science-General
- Science-Earth & Space
- Exceptional Student Education (ESE)
- English to Speakers of Other Languages (ESOL)
- Reading

Supporting Documentation Included: Critical Teacher Shortage Areas for 2017-18 and Rule 6A-20.0131, Critical Teacher Shortages

Facilitator: Juan Copa, Deputy Commissioner, Division of Accountability, Research, and Measurement

Identification of Critical Teacher Shortage Areas

Recommended Critical Teacher Shortage Areas

This report identifies which certification areas represent the greatest need among teachers statewide. Using the information provided below, the recommended critical teacher shortage areas for the 2017-18 school year are as follows:

- English
- Mathematics
- Science-General
- Science-Earth & Space
- Exceptional Student Education (ESE)
- English to Speakers of Other Languages (ESOL)
- Reading

The shortage areas above represent certification areas where substantial proportions of teachers who are not certified in the appropriate field are being hired to teach such courses, where significant vacancies exist and where postsecondary institutions do not produce enough graduates to meet the needs of Florida's K-12 student population. This information can be used to determine the current and projected needs of classroom teachers for specific subject areas in the upcoming school year. The process used to determine these critical teacher shortage areas is presented below.

Background

Section 1012.07, F.S., requires the State Board of Education to annually identify critical teacher shortage areas based on the recommendations of the Commissioner of Education. This statute is accompanied by SBE Rule 6A-20.0131, Florida Administrative Code, which specifies that the list of shortage areas identify high-need content areas and high-priority location areas using the following information:

1. The number and percentage of positions in each discipline filled by teachers not certified in the appropriate field;
2. The annual supply of graduates of state-approved Florida teacher education programs for each discipline;
3. The number and percentage of vacant positions in each teaching discipline; and
4. Critical teacher shortage areas which may be identified pursuant to rules adopted by district school boards. These areas shall be identified based on consideration of at least the information specified in items 1 through 3 above and submitted to the Department no later than June 1st of each year.

Additionally, sections 1012.22(1)(c)4.b., F.S., and 1012.22(1)(c)5.c.I., F.S., include provisions requiring local school districts to incorporate critical teacher shortage areas into both their grandfathered and performance salary schedules.

Determining Shortage Areas

The critical teacher shortage areas for 2017-18 were determined using information provided in Exhibits 3 through 5 below. The Department used the information in each of the exhibits to create rankings for each measure in Exhibit 1.¹ Rankings were then averaged across all measures to produce the final rankings.

In Exhibit 1 below, the shaded and bolded subject fields indicate the recommended 2017-18 Critical Teacher Shortage areas. The final column in Exhibit 1, "Final Rank," shows that English was ranked first place with an average rank of 8. English was followed by Mathematics, Science-General, Science-Earth & Space, Exceptional Student Education (ESE), English to Speakers of Other Languages (ESOL), and Reading as critical teacher shortage areas.

Exhibit 1 – Summary of Critical Teacher Shortage Rankings for 2017-18.

Certification Areas	Rank Based on % of Courses Taught by Teachers Not Certified in the Appropriate Field for the Course (as reported by school districts)	Rank Based on Projected Vacancies (as reported by school districts)	Rank Based on % of Completers (as reported by teacher preparation programs)	Average Rank	Rank	Final Rank
English	1	3	20	8.00	1	1
Mathematics	2	4	21	9.00	3	3
Science-General*	5	9	13	9.00	3	3
Science-Earth & Space	7	14	7	9.33	4	4
ESE*	4	2	25	10.33	7	7
ESOL*	6	8	17	10.33	7	7
Reading*	3	5	23	10.33	7	7
Science-Physical*	8	10	15	11.00	8	N/A
Business Education	11	17	7	11.67	9	N/A
Science-Biology	9	11	18	12.67	11	N/A
Social Sciences	10	6	22	12.67	11	N/A
Tech Education	15	19	7	13.67	12	N/A
Computer Science	15	20	7	14.00	15	N/A
Family & Consumer Sciences	12	23	7	14.00	15	N/A
Health	13	22	7	14.00	15	N/A
Educational Media Specialist	16	18	12	15.33	16	N/A
Drama	21	21	7	16.33	18	N/A
Foreign Languages-Spanish	23	16	10	16.33	18	N/A
Physical Education	22	12	16	16.67	19	N/A
Pre-K/Primary Education	19	8	24	17.00	20	N/A
Agriculture	17	24	12	17.67	25	N/A
Art	24	15	14	17.67	25	N/A
Elementary Education	26	1	26	17.67	25	N/A

¹ The rankings order the data with 1 being the subject area that shows the most need for additional teachers. For example, when looking at Exhibit 5, the subject area with the fewest program completers would be ranked as number 1, but for Exhibit 4 the subject area with the most vacancies would be ranked as number 1. In the case of a tie, all subject areas are assigned the lowest rank. For example, if three subject areas tie for third place (i.e. there is no way to distinguish between third, fourth, and fifth place), they would all be assigned fifth place.

Foreign Languages-French	20	25	8	17.67	25	N/A
Foreign Languages-Other	18	26	9	17.67	25	N/A
Music	25	14	19	19.33	26	N/A

Notes: Certification areas that were missing data in one or more of the measures examined were not ranked and excluded from the exhibit. Bolded subject fields indicate 2017-18 Critical Teacher Shortages.

* Science-General includes Science and General Science; Science-Physical includes Chemistry and Physics; Exceptional Student Education (ESE) includes Exceptional Student Education, Speech Correction, Emotionally Handicapped, Hearing Impaired, Mentally Handicapped, Physically Impaired, Specific Learning Disabilities, Speech Language Impaired, Varying Exceptionalities, Visually Impaired, Autism Spectrum Disorders endorsement, Adaptive Physical Education, and Orientation and Mobility endorsement; Reading and ESOL include both the certification and the endorsement.

Information on Critical Teacher Shortage Areas

Data on teachers currently in the workforce and their areas of certification are presented below to provide context for the recommended critical teacher shortage areas. This information covers the following: certification areas in which the majority of teachers are currently certified; the number of courses taught by teachers who were not appropriately certified for the courses they are teaching; the projected number of teacher vacancies as reported by school districts; and the number of recent completers of state-approved teacher preparation programs in Florida. Additional information is provided on the number of courses being taught by teachers who were not certified in the appropriate field for the courses they were teaching in high-priority locations.² The following exhibits provide information on teacher supply and demand:

- Exhibit 2 – Number of Teacher Certifications Held by Certification Area during 2015-16
- Exhibit 3 – Number of Courses Taught by Teachers Not Certified in the Appropriate Field, by Certification Area during 2015-16
- Exhibit 4 – Number of Current and Projected Vacancies by Certification Area for 2015-16
- Exhibit 5 – Number of Students Completing Teacher Education Programs during 2014-15
- Exhibit 6 – High-Priority School Locations and Courses Taught by Appropriately Certified Teachers in 2015-16

It is important to note and emphasize that all data are as reported by school districts or teacher preparation programs.

² Section 1012.07, F.S., defines high-priority locations as high-density, low-economic urban schools; low-density, low-economic urban schools; low-density, low-economic rural schools; and schools that earned a grade of “F” or three consecutive grades of “D” pursuant to s. 1008.34, F.S.

Exhibit 2 provides the total number of certifications held by teachers in 2015-16 by certification area, as reported by school districts. If a teacher held multiple certifications, each certification was included. The most common teacher certification area for the 2015-16 school year was Elementary Education, making up 22.70% of all certifications. This was closely followed by ESOL at 20.76%. Shortage areas for 2017-18 are shaded and bolded in the exhibit below. Following Elementary Education and ESOL, the numbers drop off with ESE making up 10.80% of certifications and Reading and Pre-K/Primary Education making up 6.62% and 4.80% of certifications, respectively. The seven recommended critical teacher shortage areas account for about 49.11% of all certifications (n=205,956). The complete crosswalk of Certification Subject Codes to Certification Areas can be found in Appendix C.

Exhibit 2 – Number of Teacher Certifications Held by Certification Area - Top Areas for 2015-16

Certification Areas	Total Number of Certifications	Percentage of Certifications
Elementary Education	95,196	22.70%
ESOL*	87,060	20.76%
ESE*	45,279	10.80%
Reading*	27,756	6.62%
Pre-K/Primary Education	20,148	4.80%
English	20,018	4.77%
Social Sciences	18,662	4.45%
Mathematics	17,664	4.21%
Gifted	13,021	3.11%
Physical Education	10,829	2.58%
Guidance	6,462	1.54%
Science-General*	6,455	1.54%
Science-Biology	6,420	1.53%
Foreign Languages-Spanish	5,148	1.23%
Music	4,584	1.09%
Business Education	4,487	1.07%
Early Childhood/Preschool	4,326	1.03%
Art	4,302	1.03%
Educational Media Specialist	3,736	0.89%
Health	3,276	0.78%
Science-Physical*	3,132	0.75%
Science-Earth & Space	1,724	0.41%
School Psychologist	1,453	0.35%
School Social Worker	1,409	0.34%
Family & Consumer Sciences	1,340	0.32%
Tech Education	1,003	0.24%
Driver Education	973	0.23%
Foreign Languages-French	890	0.21%
Drama	855	0.20%
Computer Science	604	0.14%
Agriculture	603	0.14%
Foreign Languages-Other	534	0.13%
Statewide Total	419,349	100.00%

Note: Bolded subject fields indicate 2017-18 Critical Teacher Shortages.

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Districts prefer to hire teachers certified in the appropriate field(s) for the courses they teach when possible to ensure children are taught the Florida Standards at the level of rigor required. Exhibit 3 provides the total number and percentage of courses taught in each certification area statewide, as well as the total number and percentage of courses taught in each certification area by teachers who were not certified in the appropriate field, as reported by school districts for the 2015-16 school year. The difference between the percentage of total courses that require a certification in the particular certification area and the percentage of courses being taught by teachers not certified in the appropriate certification area is computed. When this number is negative, it indicates the certification area is over-represented among courses taught by teachers not certified in the appropriate field when compared to the proportion of courses requiring the certification area represented overall. This information provides detail on the certification areas that are currently in demand across all school districts based on how frequently courses are being taught by teachers without the required certification relative to those courses' prevalence among course offerings in Florida. English had the highest percentage of courses taught by teachers without the required certification relative to its prevalence among course offerings in Florida.

Exhibit 3 – Number of Courses Taught by Teachers Not Certified in the Appropriate Field, by Certification Area during 2015-16.

Certification Areas	Total Number of Courses Reported Statewide	Percentage of Total Courses Reported Statewide	Total Number of Courses Taught by Teachers Not Certified in Appropriate Field Reported Statewide	Percentage of Total Courses Taught by Teachers Not Certified in Appropriate Field Reported Statewide	Difference	Rank Based on Difference
English	34,462	6.12%	4,293	12.26%	-6.14%	1
Reading*	4,601	0.82%	913	2.61%	-1.79%	2
Mathematics	35,108	6.24%	2,808	8.02%	-1.78%	3
ESE*	61,982	11.02%	4,456	12.73%	-1.71%	4
Science-General*	9,901	1.76%	1,011	2.89%	-1.13%	5
ESOL*	2,563	0.46%	409	1.17%	-0.71%	6
Science-Earth & Space	3,455	0.61%	421	1.20%	-0.59%	7
Science-Physical*	6,596	1.17%	577	1.65%	-0.48%	8
Gifted	907	0.16%	172	0.49%	-0.33%	N/A
Science-Biology	7,475	1.33%	539	1.54%	-0.21%	9
Social Sciences	27,778	4.94%	1,792	5.12%	-0.18%	10
Business Education	1,178	0.21%	131	0.37%	-0.16%	11
Family And Consumer Sciences	777	0.14%	101	0.29%	-0.15%	12
Health	702	0.12%	86	0.25%	-0.12%	13
Tech Education	279	0.05%	28	0.08%	-0.03%	15

Certification Areas	Total Number of Courses Reported Statewide	Percentage of Total Courses Reported Statewide	Total Number of Courses Taught by Teachers Not Certified in Appropriate Field Reported Statewide	Percentage of Total Courses Taught by Teachers Not Certified in Appropriate Field Reported Statewide	Difference	Rank Based on Difference
Computer Science	184	0.03%	21	0.06%	-0.03%	15
Educational Media Specialist	198	0.04%	20	0.06%	-0.02%	16
Agriculture	452	0.08%	30	0.09%	-0.01%	17
Foreign Languages-Other	934	0.17%	46	0.13%	0.03%	18
Pre-K/Primary Education	1,568	0.28%	63	0.18%	0.10%	19
Foreign Languages-French	1,424	0.25%	45	0.13%	0.12%	20
Drama	3,058	0.54%	97	0.28%	0.27%	21
Physical Education	5,892	1.05%	259	0.74%	0.31%	22
Foreign Languages-Spanish	5,415	0.96%	160	0.46%	0.51%	23
Art	16,573	2.95%	550	1.57%	1.37%	24
Music	24,518	4.36%	834	2.38%	1.98%	25
Elementary Education	304,675	54.15%	15,148	43.27%	10.88%	26
Statewide Total	562,655	100.00%	35,010	100.00%		

Note: Certification areas that were missing data in one or more of the measures examined were not ranked and excluded from final critical teacher shortage rankings in Exhibit 1. Bolded subject fields indicate 2017-18 Critical Teacher Shortages.

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Most of the recommended critical teacher shortage areas for 2017-18 are among those with the highest projected vacancies and the highest number of current vacancies for 2016-17 (all but one are within the top 10 vacancies). Exhibit 4 provides the total number of current vacancies for the 2016-17 school year and the total number of projected vacancies by certification area. This information is typically used to plan recruitment efforts, including The Great Florida Teach-In held annually. This highlights the anticipated subject areas of teacher demand seen across all school districts.

Exhibit 4 – Number of Current and Projected Vacancies by Certification Area

Certification Area	Current Number of Vacancies for 2016-17	Percentage of Current Vacancies for 2016-17	Projected Number of Vacancies for 2016-17	Percentage of Projected Vacancies for 2016-17	Rank Based on Projected Vacancies
Elementary Education	492	23.31%	2,018	30.45%	1
ESE*	364	17.24%	771	11.63%	2
English	154	7.30%	485	7.32%	3
Mathematics	160	7.58%	447	6.74%	4
Reading*	144	6.82%	340	5.13%	5
Social Sciences	61	2.89%	305	4.60%	6
ESOL*	126	5.97%	298	4.50%	8
Pre-K/Primary Education	102	4.83%	298	4.50%	8
Science-General*	71	3.36%	220	3.32%	9
Science-Physical*	22	1.04%	214	3.23%	10
Science-Biology	22	1.04%	142	2.14%	11
Guidance	47	2.23%	131	1.98%	N/A
Speech Language Pathologist	105	4.97%	121	1.83%	N/A
Physical Education	20	0.95%	111	1.67%	12
Music	35	1.66%	95	1.43%	14
Science-Earth & Space	9	0.43%	95	1.43%	14
Art	19	0.90%	83	1.25%	15
Foreign Languages-Spanish	25	1.18%	74	1.12%	16
Business Education	13	0.62%	57	0.86%	17
School Psychologist	18	0.85%	50	0.75%	N/A
Educational Media Specialist	23	1.09%	46	0.69%	18
Tech Education	15	0.71%	41	0.62%	19
Early Childhood/Preschool	22	1.04%	34	0.51%	N/A
Computer Science	4	0.19%	33	0.50%	20
School Social Worker	9	0.43%	24	0.36%	N/A
Drama	5	0.24%	22	0.33%	21
Health	6	0.28%	20	0.30%	22
Family & Consumer Sciences	9	0.43%	17	0.26%	23
Agriculture	5	0.24%	15	0.23%	24
Foreign Languages-French	2	0.09%	14	0.21%	25
Foreign Languages-Other	2	0.09%	7	0.11%	26
State Total	2,111	100.00%	6,628	100.00%	

Note: Certification areas that were missing data in one or more of the measures examined were not ranked and excluded from final critical teacher shortage rankings in Exhibit 1. Bolded subject fields indicate 2017-18 Critical Teacher Shortages.

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The number of students earning a certification in a particular content area in Florida gives an estimate of the number of new teachers available to fill vacancies in the state. Exhibit 5 presents the most recent information on new completers reported by teacher education programs across Florida.

Exhibit 5 – Number of Students Completing Teacher Education Programs in 2014-15

Certification Areas	Number and Percentage of Completers Reported		Rank Based on Percentage of Completers Reported
	Number	Percentage	
Business Education	0	0.00%	7
Computer Science	0	0.00%	7
Drama	0	0.00%	7
Family & Consumer Sciences	0	0.00%	7
Health	0	0.00%	7
School Social Worker	0	0.00%	N/A
Science-Earth & Space	0	0.00%	7
Speech Language Pathologist	0	0.00%	N/A
Tech Education	0	0.00%	7
Foreign Languages-French	1	0.02%	8
Foreign Languages-Other	5	0.10%	9
Foreign Languages-Spanish	6	0.13%	10
Agriculture	11	0.23%	12
Educational Media Specialist	11	0.23%	12
Science-General*	27	0.56%	13
Art	34	0.71%	14
Science-Physical*	37	0.77%	15
Early Childhood/Preschool	39	0.82%	N/A
Physical Education	45	0.94%	16
ESOL*	47	0.98%	17
School Psychologist	66	1.38%	N/A
Science-Biology	85	1.78%	18
Guidance	102	2.13%	N/A
Music	163	3.41%	19
English	192	4.01%	20
Mathematics	196	4.10%	21
Social Sciences	197	4.12%	22
Reading*	274	5.73%	23
Pre-K/Primary Education	340	7.11%	24
ESE*	734	15.34%	25
Elementary Education	2,173	45.41%	26
Total	4,785	100.00%	

Note: Certification areas that were missing data in one or more of the measures examined were not ranked and excluded from final critical teacher shortage rankings in Exhibit 1. Bolded subject fields indicate 2017-18 Critical Teacher Shortages.

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Schools considered persistently low performing and schools serving a high proportion of students who receive free or reduced lunch have a higher proportion of courses taught by teachers that districts report as not being certified in the appropriate field for the courses they are teaching. Schools receiving a school grade of “D” in 2015-16 (and either a “D” or an “F” for both of the prior two years) experience the largest proportion of teachers not certified in the appropriate field for the courses they teach. This information provides the context of high-need schools experiencing higher numbers of courses being taught by teachers that are not certified to teach the subject. The complete list of high priority school locations can be found in Appendix A and Appendix B.

A larger percentage of courses are being taught by teachers not certified in the appropriate field for the courses they teach in the high-priority school locations compared to the statewide total. Exhibit 6 provides information on the number of high-priority school locations and the proportion of courses at those locations being taught by teachers who were not certified in the appropriate field for the courses they teach (out-of-field) and teachers who were certified in the appropriate field for the courses they teach (in-field). The statewide percentage of courses taught by out-of-field teachers for all schools that received a school grade in 2015-16 is 5.65%. Schools that had received a combination of “D” or “F” ratings in the past three years had the largest percentage of courses being taught out-of-field at 11.06%. Schools that received a school grade of “F” have 9.59% of courses being taught out-of-field, while 7.57% of courses at Urban/Low-Economic Schools and 5.18% of courses at rural/low-economic schools are being taught out-of-field. Consistent with Florida Statute we have identified high-priority locations as high-density, low-economic urban schools, low-density, low-economic rural schools, and schools that earned a school grade of “F” or three consecutive grades of “D” or below. Low-economic schools are those that have 75% or more students who qualify for free or reduced price lunch. Urban and rural school distinctions are based on the National Center for Education Statistics (NCES) locale codes which are a measure of geographic status on an urban continuum that ranges from “large city” to “rural” based on the standards used by the Census.

**Exhibit 6 – High-Priority School Locations and Courses Taught by Appropriately Certified Teachers
Among Schools that Received a School Grade**

High-Priority School Locations ¹	Number of Schools	Total Number of Courses	Number and Percentage of Courses In-Field		Number and Percentage of Courses Out-of-Field	
			Number	Percentage	Number	Percentage
D	150	24,162	21,489	88.94%	2,673	11.06%
F	109	13,021	11,772	90.41%	1,249	9.59%
Rural	171	29,004	27,502	94.82%	1,502	5.18%
Urban	435	76,338	70,561	92.43%	5,777	7.57%
Statewide Totals- All Schools	3,290	627,853	592,365	94.35%	35,488	5.65%

¹The list of high-priority school locations can be found in Appendix A and Appendix B attached.

²Per section 1012.07, F.S., in order to be a high-priority location area, a school must have earned three consecutive “D” ratings. For the purposes of this analysis, we have also included schools that earned a “D” for the current year and either a “D” or an “F” for both of the prior two years, considering this situation to be functionally equivalent with the intent of the statute.