

2020 GRADUATION AND PERSISTENCE REPORT



Any questions Concerning material contained In this book should be directed to:

Institutional Research, Research and Analytics Colorado School of Mines 1500 Illinois Street Golden, CO 80401

> Telephone: (303) 273-3383 Fax: (303) 273-3950

> Email: tdouthit@mines.edu

### **Table of Contents**

TABLE OF CONTENTS	3
FIRST-TIME FRESHMAN COHORT	
GRADUATION RATES	
FIRST-TIME FRESHMAN COHORT	4
BY GENDER	5
BY ETHNICITY	6
BY ORIGINAL TUITION CLASSIFICATION	7
PERSISTENCE RATES	
BY GENDER	8
BY ETHNICITY	9
BY ORIGINAL TUITION CLASSIFICATION	10
TRANSFER COHORT	
GRADUATION RATES	
TRANSFER COHORT	11
BY GENDER	12
BY ETHNICITY	13
BY ORIGINAL TUITION CLASSIFICATION	14
PERSISTENCE RATES	
BY GENDER	15
BY ETHNICITY	16
BY ORIGINAL TUITION CLASSIFICATION	17

#### **DEFINITIONS**

FRESHMAN COHORT — FIRST-TIME, FULL TIME (12 CREDITS) NEW FRESHMEN TRANSFER COHORT — FIRST-TIME, FULL TIME (12 CREDITS) NEW TRANSFER

A <u>persistence rate</u> is the percentage of students in a given cohort who are enrolled at Colorado School of Mines in a specified term or are not enrolled in the specified term but have graduated from CSM between matriculation and that term. The number of students in the cohort is the denominator of the rate; the number of students enrolled or who have graduated but not enrolled one year later is the numerator of the rate.

A <u>graduation rate</u> is the percentage of students in a given cohort who have graduated within a specified period of time. The number of students in the cohort is the denominator of the rate; the number of students who graduated is the numerator of the rate. NOTE: Starting in fall 2015 report, the graduation rate period of time was changed from using fiscal year to academic year terms.

Once a student is in the cohort, they remain in the cohort, even if they switch to part-time or drop out. However, adjustments can be made to the initial cohort for exclusions, which include the death of a student, permanent disability, military deployment, or an official church mission.

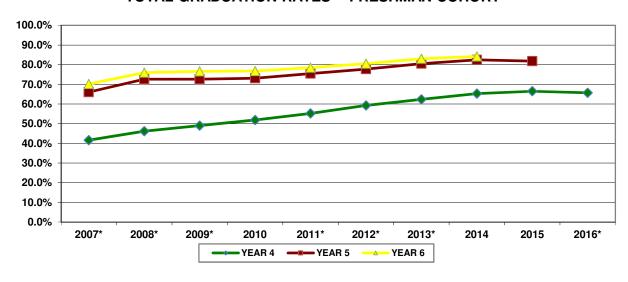


### **GRADUATION RATES -- FRESHMAN COHORT**

FALL		REVISED	END	OF	END	OF	END	) OF
TERM	COHORT	COHORT	YEA	R 4	YEA	YEAR 5		NR 6
2007*	780	778	324	41.6%	514	66.1%	546	70.2%
2008*	848	844	390	46.2%	613	72.6%	641	75.9%
2009*	879	877	430	49.0%	637	72.6%	672	76.6%
2010	875	875	454	51.9%	640	73.1%	672	76.8%
2011*	879	874	483	55.3%	660	75.5%	686	78.5%
2012*	949	946	561	59.3%	736	77.8%	762	80.5%
2013*	954	952	594	62.4%	767	80.6%	791	83.1%
2014	998	998	652	65.3%	823	82.5%	840	84.2%
2015	1003	1003	667	66.5%	821	81.9%		
2016*	974	972	639	65.7%				

<sup>\*</sup>Cohorts have been revised due to exlusions.

### **TOTAL GRADUATION RATES -- FRESHMAN COHORT**





### **GRADUATION RATES BY GENDER -- FRESHMAN COHORT**

### **GRADUATION RATES -- FRESHMAN COHORT MALES**

FALL		REVISED	END	OF .	END C	F	ENI	O OF	
TERM	COHORT	COHORT	YEA	\R 4	YEAR	5	YEAR 6		
2007	611	611	249	40.8%	403	66.0%	427	69.9%	
2008*	597	593	260	43.8%	423	71.3%	442	74.5%	
2009*	658	657	303	46.1%	459	69.9%	489	74.4%	
2010	644	644	320	49.7%	456	70.8%	481	74.7%	
2011*	656	651	335	51.5%	474	72.8%	498	76.5%	
2012*	679	676	383	56.7%	515	76.2%	535	79.1%	
2013*	682	680	420	61.8%	542	79.7%	559	82.2%	
2014	737	737	469	63.6%	595	80.7%	611	82.9%	
2015	686	686	439	64.0%	557	81.2%			
2016*	685	683	428	62.7%					

### **GRADUATION RATES -- FRESHMAN COHORT FEMALES**

FALL		REVISED	END	) OF	END O	F	END	OF	
TERM	COHORT	COHORT	YEAR 4		YEAR	5	YEAR 6		
2007*	169	167	75	44.9%	111	66.5%	119	71.3%	
2008	250	250	130	52.0%	189	75.6%	198	79.2%	
2009*	221	220	127	57.7%	178	80.9%	183	83.2%	
2010	231	231	134	58.0%	184	79.7%	191	82.7%	
2011	223	223	148	66.4%	186	83.4%	188	84.3%	
2012	270	270	178	65.9%	221	81.9%	227	84.1%	
2013	272	272	174	64.0%	225	82.7%	232	85.3%	
2014	261	261	183	70.1%	228	87.4%	229	87.7%	
2015	317	317	228	71.9%	264	83.3%			
2016	288	288	210	72.9%					



### **GRADUATION RATES BY ETHNICITY -- FRESHMAN COHORT**

### **GRADUATION RATES -- COMBINED ETHNICITIES -- FRESHMAN COHORT**

FALL TERM	COHORT	REVISED COHORT	END OF YEAR 4			O OF AR 5	END OF YEAR 6		
2009*	118	117	47	40.2%	80	68.4%	87	74.4%	
2010	141	141	71	50.4%	105	74.5%	109	77.3%	
2011	150	150	69	46.0%	102	68.0%	107	71.3%	
2012	173	173	95	54.9%	129	74.6%	134	77.5%	
2013	180	180	100	55.6%	140	77.8%	145	80.6%	
2014	182	182	123	67.6%	150	82.4%	155	85.2%	
2015	190	190	121	63.7%	159	83.7%			
2016	173	173	107	61.8%					

### GRADUATION RATES -- COMBINED ETHNICITIES MALES -- FRESHMAN COHORT

FALL TERM	COHORT	REVISED COHORT	END OF YEAR 4			D OF AR 5	END OF YEAR 6		
2009	86	86	33	38.4%	57	66.3%	63	73.3%	
2010	98	98	54	55.1%	72	73.5%	75	76.5%	
2011	109	109	44	40.4%	71	65.1%	75	68.8%	
2012	122	122	71	58.2%	91	74.6%	94	77.0%	
2013	126	126	68	54.0%	94	74.6%	98	77.8%	
2014	120	120	80	66.7%	96	80.0%	101	84.2%	
2015	120	120	69	57.5%	99	82.5%			
2016	121	121	70	57.9%					

## GRADUATION RATES COMBINED ETHNICITIES FEMALES -- FRESHMAN COHORT

#### FALL REVISED **END OF END OF END OF** COHORT YEAR 4 **TERM** COHORT YEAR 5 YEAR 6 2009\* 32 31 45.2% 23 74.2% 24 77.4% 14 76.7% 2010 43 43 17 39.5% 33 34 79.1% 2011 41 41 25 61.0% 31 75.6% 32 78.0% 2012 51 51 47.1% 38 74.5% 40 78.4% 24 54 54 46 47 85.2% 2013 32 59.3% 87.0% 62 62 54 87.1% 54 2014 43 69.4% 87.1% 2015 70 70 52 74.3% 60 85.7% 2016 52 52 37 71.2%



# GRADUATION RATES BY ORIGINAL TUITION CLASSIFICATION FRESHMAN COHORT

### **GRADUATION RATES -- RESIDENTS -- FRESHMAN COHORT**

FALL TERM	COHORT	REVISED COHORT		O OF AR 4	END YEA	_	END OF YEAR 6		
2007*	551	550	241	43.8%	371	67.5%	396	72.0%	
2008*	585	582	291	50.0%	440	75.6%	462	79.4%	
2009*	597	595	296	49.7%	441	74.1%	469	78.8%	
2010	562	562	292	52.0%	421	74.9%	444	79.0%	
2011*	523	519	296	57.0%	407	78.4%	423	81.5%	
2012*	570	568	341	60.0%	447	78.7%	466	82.0%	
2013*	537	536	334	62.3%	448	83.6%	458	85.4%	
2014	581	581	374	64.4%	486	83.6%	498	85.7%	
2015	505	505	358	70.9%	423	83.8%			
2016*	505	503	352	70.0%					

### **GRADUATION RATES -- NON-RESIDENTS -- FRESHMAN COHORT**

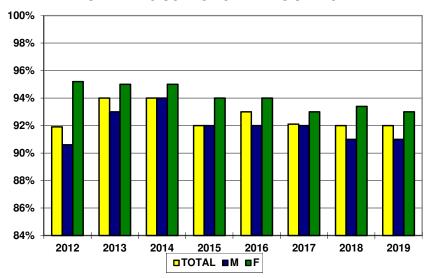
FALL TERM	COHORT	REVISED COHORT		OF AR 4	END YEA			OF AR 6
2007*	229	228	83	36.4%	143	62.7%	150	65.8%
2008*	263	262	99	37.8%	173	66.0%	179	68.3%
2009	282	282	134	47.5%	196	69.5%	203	72.0%
2010	313	313	162	51.8%	219	70.0%	228	72.8%
2011*	356	355	187	52.7%	253	71.3%	263	74.1%
2012*	379	378	220	58.2%	289	76.5%	296	78.3%
2013*	417	416	260	62.5%	319	76.7%	333	80.0%
2014	417	417	278	66.7%	337	80.8%	342	82.0%
2015	491	491	305	62.1%	393	80.0%	393	80.0%
2015	469	469	287	61.2%				



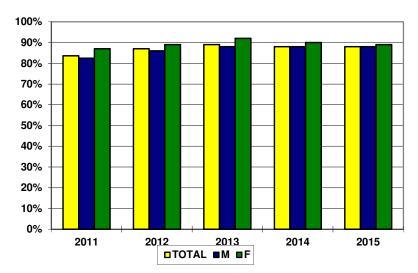
### PERSISTENCE RATES -- FRESHMAN COHORT BY GENDER

FALL	CC	)HOR	Τ	Υ	EAR 2		Υ	EAR 3		YI	EAR 4		Y	EAR 5	
	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F
2010	875	644	231	89%	89%	91%	83%	82%	86%	80%	78%	84%	26%	27%	24%
2011	879	656	223	89%	89%	90%	84%	83%	87%	80%	80%	83%	25%	27%	18%
2012	949	679	270	92%	91%	95%	87%	86%	89%	82%	81%	85%	24%	25%	20%
2013	954	682	272	94%	93%	95%	89%	88%	92%	83%	82%	87%	23%	22%	24%
2014	998	737	261	94%	94%	95%	88%	88%	90%	84%	83%	87%	19%	20%	18%
2015	1003	686	317	92%	92%	94%	88%	88%	89%	83%	83%	84%	19%	21%	14%
2016	974	685	288	93%	92%	94%	88%	87%	90%	79%	78%	83%	18%	20%	14%
2017	1134	769	365	92%	92%	93%	87%	87%	88%	79%	78%	81%			
2018	1196	819	380	92%	91%	93%	87%	86%	89%						
2019	1279	844	435	92%	91%	93%		_							·

### FRESHMAN TO SOPHOMORE PERSISTENCE RATE



### SOPHOMORE TO JUNIOR PERSISTENCE RATE





#### PERSISTENCE RATES BY ETHNICITY -- FRESHMAN COHORT

		COHO	RT			YEA	₹2			YEA	₹3			YEAF	₹4			YEA	R 5	
FALL	ETHNIC COMB	CAUC	INTRN	UNK	ETHNIC COMB	CAUC	INTRN	UNK	ETHNIC COMB	CAUC	INTRN	UNK	ETHNIC COMB	CAUC	INTRN	UNK	ETHNIC COMB	CAUC	INTRN	UNK
2008	118	602	22	106	92%	92%	77%	85%	86%	84%	55%	78%	84%	81%	50%	73%	42%	34%	18%	25%
2009	119	613	40	107	89%	89%	85%	87%	82%	83%	80%	80%	76%	80%	78%	77%	36%	28%	15%	38%
2010	141	687	25	22	98%	90%	64%	91%	82%	84%	64%	82%	83%	80%	56%	73%	28%	26%	12%	32%
2011	150	695	31	3	85%	91%	81%	100%	79%	85%	77%	100%	75%	82%	71%	67%	28%	25%	23%	5%
2012	173	740	34	2	91%	92%	91%	100%	89%	86%	88%	100%	81%	82%	79%	33%	27%	23%	12%	50%
2013	180	731	38	5	93%	94%	97%	100%	88%	89%	95%	100%	82%	83%	87%	100%	28%	22%	16%	0%
2014	182	777	38	1	92%	94%	97%	100%	87%	89%	89%	100%	85%	84%	92%	40%	18%	20%	21%	0%
2015	190	762	51	0	93%	92%	88%	na	88%	88%	86%	na	83%	83%	86%	na	23%	18%	18%	0%
2016	173	760	39	2	94%	93%	92%	100%	88%	88%	87%	100%	79%	79%	77%	100%	20%	18%	10%	0%
2017	255	827	35	17	90%	93%	91%	94%	87%	87%	89%	92%	79%	78%	74%	88%	l l			
2018	257	845	60	23	94%	92%	88%	91%	86%	87%	85%	91%					l l			
2019	284	877	59	59	90%	93%	95%	92%									i i			

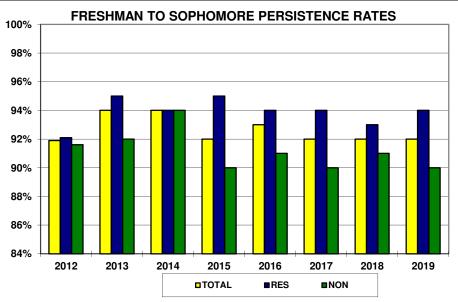
The collection, storing, and reporting of race and ethnicity changed for higher education in 2009.

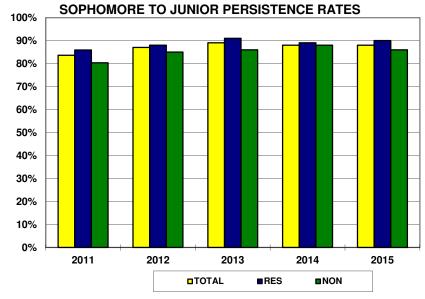
Two new categories are added as a result of this change; Native Hawaiian (HAW) and Multi Racial (MULTI).



### PERSISTENCE RATES -- FRESHMAN COHORT BY ORIGINAL TUITION CLASSIFICATION

FALL	С	OHOR	Γ	,	YEAR 2		,	YEAR 3		'	YEAR 4			YEAR 5	
	TOTAL	RES	NON	TOTAL	RES	NON	TOTAL	RES	NON	TOTAL	RES	NON	TOTAL	RES	NON
2010	875	562	313	89%	90%	88%	83%	85%	81%	80%	81%	77%	26%	28%	24%
2011	879	523	356	89%	92%	85%	84%	86%	80%	80%	83%	77%	25%	26%	24%
2012	949	570	379	92%	92%	92%	87%	88%	85%	82%	84%	80%	24%	25%	21%
2013	954	537	417	94%	95%	92%	89%	91%	86%	83%	85%	81%	23%	26%	19%
2014	998	581	417	94%	94%	94%	88%	89%	88%	84%	85%	82%	19%	22%	16%
2015	1003	505	498	92%	95%	90%	88%	90%	86%	83%	85%	82%	19%	17%	20%
2016	974	505	469	93%	94%	91%	88%	89%	87%	79%	80%	78%	18%	16%	19%
2017	1134	604	530	92%	94%	90%	87%	90%	84%	79%	80%	77%			
2018	1196	580	616	92%	93%	91%	87%	88%	86%						
2019	1279	655	624	92%	94%	90%	_			_			_		



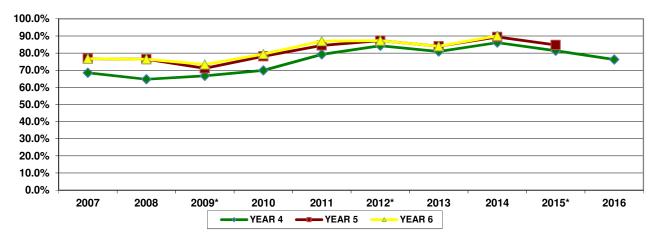




### **GRADUATION RATES -- TRANSFER COHORT**

FALL TERM	COHORT	REVISED COHORT			END OF YEAR 5		END OF YEAR 6	
2007	73	73	50	68.5%	56	76.7%	56	76.7%
2008	51	51	33	64.7%	39	76.5%	39	76.5%
2009*	91	90	60	66.7%	64	71.1%	66	73.3%
2010	73	73	51	69.9%	57	78.1%	58	79.5%
2011	77	77	61	79.2%	65	84.4%	67	87.0%
2012*	103	102	86	84.3%	89	87.3%	89	87.3%
2013	131	131	106	80.9%	110	84.0%	110	84.0%
2014	151	151	130	86.1%	135	89.4%	136	90.1%
2015*	120	118	96	81.4%	100	84.7%		
2016	139	139	106	76.3%				

### **TOTAL GRADUATION RATES -- TRANSFER COHORT**





### **GRADUATION RATES BY GENDER -- TRANSFER COHORT**

### **GRADUATION RATES -- TRANSFER COHORT MALES**

FALL TERM	COHORT	REVISED COHORT		O OF AR 4	END YEA	_	END OF YEAR 6		
2007	57	57	39	68.4%	42	73.7%	42	73.7%	
2008	35	35	24	68.6%	28	80.0%	28	80.0%	
2009*	70	69	47	68.1%	51	73.9%	52	75.4%	
2010	57	57	39	68.4%	45	78.9%	46	80.7%	
2011	56	56	46	82.1%	48	85.7%	50	89.3%	
2012	79	79	65	82.3%	67	84.8%	67	84.8%	
2013	97	97	79	81.4%	81	83.5%	81	83.5%	
2014	118	118	99	83.9%	104	88.1%	105	89.0%	
2015*	83	81	66	81.5%	69	85.2%			
2016	105	105	77	73.3%					

### **GRADUATION RATES -- TRANSFER COHORT FEMALES**

FALL TERM	COHORT	REVISED COHORT		O OF AR 4	END YEA		END OF YEAR 6		
2007	16	16	11	68.8%	14	87.5%	14	87.5%	
2008	16	16	9	56.3%	11	68.8%	11	68.8%	
2009	21	21	13	61.9%	13	61.9%	14	66.7%	
2010	16	16	12	75.0%	12	75.0%	12	75.0%	
2011	21	21	15	71.4%	17	81.0%	17	81.0%	
2012*	24	23	21	91.3%	22	95.7%	22	95.7%	
2013	34	34	27	79.4%	29	85.3%	29	85.3%	
2014	33	33	31	93.9%	31	93.9%	31	93.9%	
2015	37	37	30	81.1%	31	83.8%			
2016	34	34	29	85.3%					



### **GRADUATION RATES BY ETHNICITY -- TRANSFER COHORT**

### **GRADUATION RATES -- COMBINED ETHNICITY -- TRANSFER COHORT**

FALL TERM	COHORT	REVISED COHORT	END YEA	_		D OF AR 5	END OF YEAR 6		
2007	9	9	5	56%	7	78%	7	78%	
2008	2	2	0	0%	2	100%	2	100%	
2009*	10	9	7	78%	7	78%	7	78%	
2010	12	12	6	50%	7	58%	8	67%	
2011	15	15	10	67%	11	73%	11	73%	
2012	18	18	12	67%	13	72%	13	72%	
2013	26	26	16	62%	19	73%	19	73%	
2014	24	24	18	75%	19	79%	20	83.3%	
2015*	21	20	17	85%	17	85.0%			
2016	32	32	20	63%					



## GRADUATION RATES BY ORIGINAL TUITION CLASSIFICATION TRANSFER COHORT

### **GRADUATION RATES -- RESIDENTS -- TRANSFER COHORT**

FALL TERM	COHORT	REVISED COHORT		D OF AR 4	END YEA	_		END OF YEAR 6
2007	54	54	39	72%	45	83%	45	83%
2008	27	27	17	63%	22	81%	22	81%
2009*	66	65	42	65%	46	71%	48	74%
2010	54	54	38	70%	43	80%	44	81%
2011	54	54	43	80%	45	83%	45	83%
2012*	69	68	57	84%	60	88%	60	88%
2013	84	84	67	80%	71	85%	71	85%
2014	94	94	80	85%	82	87%	83	88%
2015*	76	75	63	84%	66	88%		
2016	79	79	61	77%				

### **GRADUATION RATES -- NON-RESIDENTS -- TRANSFER COHORT**

FALL TERM	COHORT	REVISED COHORT		D OF AR 4	END YEA	_	END OF YEAR 6			
2007	19	19	11	58%	11	58%	11	58%		
2008	24	24	16	67%	17	71%	17	71%		
2009*	25	25	18	72%	18	72%	18	72%		
2010	19	19	13	68%	14	74%	14	74%		
2011	23	23	18	78%	20	87%	22	96%		
2012*	34	34	29	85%	29	85%	29	85%		
2013	47	47	39	83%	39	83%	39	83%		
2014	57	57	50	88%	53	93%	53	93%		
2015*	44	43	33	77%	34	79%				
2016	60	60	45	75%						



### PERSISTENCE RATES -- TRANSFER COHORT BY GENDER

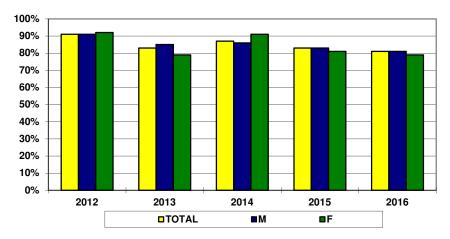
FALL	C	OHOR	Γ	,	YEAR 2		'	YEAR 3		Y	EAR 4			YEAR 5	
	TOTAL	М	F	TOTAL	M	F	TOTAL	М	F	TOTAL	M	F	TOTAL	M	F
2010	73	57	16	88%	89%	81%	74%	72%	821%	36%	35%	38%	10%	12%	0%
2011	77	56	21	94%	95%	90%	88%	88%	91%	34%	30%	43%	10%	7%	19%
2012	103	79	24	93%	94%	92%	91%	91%	92%	32%	28%	46%	3%	3%	4%
2013	131	97	34	92%	94%	88%	83%	85%	79%	27%	27%	29%	4%	3%	6%
2014	151	118	33	95%	95%	94%	87%	86%	91%	23%	23%	24%	4%	5%	0%
2015	120	83	37	91%	90%	92%	83%	83%	81%	20%	23%	14%	8%	10%	3%
2016	139	105	34	86%	86%	88%	81%	81%	79%	22%	22%	21%	5%	7%	0%
2017	168	128	40	89%	90%	88%	79%	79%	78%	19%	19%	20%			
2018	135	107	28	87%	88%	86%	75%	75%	75%						
2019	170	124	46	87%	88%	85%									

<sup>\*</sup> Select records in the dataset do not report gender.

#### FRESHMEN TO SOPHOMORE PERSISTENCE RATE

#### 100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% 2013 2019 2014 2015 2016 2017 2018 **□TOTAL** ■ M ■F

#### SOPHOMORE TO JUNIOR PERSISTENCE RATE





### PERSISTENCE RATES BY ETHNICITY -- TRANSFER COHORT

						YΕ	AR 2			YΕ	AR 3			YΕ	AR 4			YE	AR 5	
FALL	ETHNIC COMB	CAUC	INTRN	UNASW	ETHNIC COMB	CAUC	INTRN	UNASW	ETHNIC COMB	CAUC	INTRN	UNASW	ETHNIC COMB	CAUC	INTRN	UNASW	ETHNIC COMB	CAUC	INTRN	UNASW
2008	2	26	14	10	100%	96%	79%	90%	100%	74%	79%	89%	100%	44%	21%	44%	100%	15%	0%	11%
2009	12	45	13	21	75%	80%	92%	95%	75%	78%	77%	71%	17%	51%	15%	33%	0%	11%	0%	13%
2010	12	45	9	7	75%	91%	89%	86%	67%	76%	89%	57%	50%	33%	22%	43%	17%	11%	0%	0%
2011	15	48	8	6	93%	94%	100%	83%	87%	92%	88%	67%	47%	33%	38%	0%	13%	13%	0%	0%
2012	18	64	13	8	83%	95%	100%	88%	83%	94%	92%	88%	22%	36%	25%	31%	6%	3%	0%	0%
2013	26	74	23	8	81%	95%	100%	88%	81%	82%	63%	96%	23%	20%	65%	0%	12%	3%	0%	0%
2014	24	82	33	12	96%	95%	92%	94%	79%	88%	94%	75%	29%	11%	52%	17%	8%	1%	9%	0%
2015	21	76	19	4	86%	91%	95%	100%	81%	84%	84%	50%	24%	22%	5%	25%	0%	9%	11%	0%
2016	32	81	24	2	75%	88%	96%	100%	66%	83%	92%	100%	13%	24%	25%	50%	3%	5%	8%	0%
2017	40	110	15	3	85%	89%	100%	100%	80%	76%	93%	67%	10%	22%	27%	0%				
2018	36	84	13	2	81%	89%	92%	100%	72%	75%	85%	50%								
2019	45	112	6	7	89%	86%	100%	86%												

The collection, storing, and reporting of race and ethnicity changed for higher education in 2009.

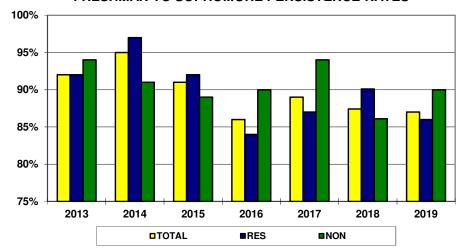
Two new categories are added as a result of this change; Native Hawaiian (HAW) and Multi Racial (MULTI).



### PERSISTENCE RATES -- TRANSFER COHORT BY ORIGINAL TUITION CLASSIFICATION

FALL	C	OHORT		`	YEAR 2		•	YEAR 3		•	YEAR 4			YEAR 5	ı
	TOTAL	RES	NON	TOTAL	RES	NON	TOTAL	RES	NON	TOTAL	RES	NON	TOTAL	RES	NON
2010	73	54	19	88%	91%	79%	74%	76%	68%	36%	43%	16%	10%	13%	0%
2011	77	54	23	94%	91%	100%	88%	85%	96%	34%	28%	48%	10%	7%	17%
2012	103	69	34	93%	94%	91%	91%	91%	91%	32%	36%	24%	3%	4%	0%
2013	131	84	47	92%	92%	94%	83%	83%	83%	27%	23%	36%	4%	6%	0%
2014	151	94	57	95%	97%	91%	87%	85%	89%	23%	15%	37%	4%	3%	5%
2015	120	76	44	91%	92%	89%	83%	84%	80%	20%	25%	11%	8%	7%	8%
2016	139	79	60	86%	84%	90%	81%	76%	87%	22%	19%	25%	5%	3%	8%
2017	168	118	50	89%	87%	94%	79%	77%	84%	19%	20%	16%			
2018	135	91	36	87%	90%	86%	75%	76%	73%						
2019	170	121	49	87%	86%	90%									·

#### FRESHMAN TO SOPHOMORE PERSISTENCE RATES



#### SOPHOMORE TO JUNIOR PERSISTENCE RATES

