

First-time, Full-time Students (Women)																
Cohort	Cohort size		Semester Retention				1st - 2nd Year Retention				1st - 3rd Year Retention					
	Cohort size	Cohort size (adjusted) ¹	Spring 1		Fall 2		Spring 2	Fall 3 ³		Spring 3						
			Mean 1st Term GPA (std. dev.) ²	n	% of cohort	Mean 1st-yr. Cumulative GPA (std. dev.) ²		n	% of cohort		Mean 2nd-yr. Cumulative GPA (std. dev.) ²	n	% of cohort			
2000	522	521	3.24	0.44	500	96%	3.24	0.44	472	91%	457	3.29	0.41	438	84%	413
2001	517	517	3.20	0.53	509	98%	3.23	0.46	468	91%	456	3.32	0.41	448	87%	425
2002	527	527	3.24	0.48	515	98%	3.27	0.42	480	91%	472	3.34	0.38	455	86%	422
2003	545	545	3.24	0.51	524	96%	3.23	0.45	477	88%	465	3.30	0.41	449	82%	414
2004	580	579	3.15	0.58	566	98%	3.17	0.48	522	90%	511	3.23	0.43	487	84%	455
2005	526	526	3.18	0.49	505	96%	3.20	0.44	464	88%	452	3.25	0.41	421	80%	425
2006	596	596	3.18	0.51	582	98%	3.22	0.42	539	90%	526	3.31	0.38	506	85%	495
2007	546	545	3.17	0.54	536	98%	3.24	0.44	498	91%	488	3.32	0.04	464	85%	458
2008	638	637	3.13	0.57	623	98%	3.17	0.46	570	89%	554	3.26	0.41	529	83%	540
2009	592	592	3.08	0.60	566	96%	3.12	0.51	513	87%	504	3.22	0.44	487	82%	484
2010	630	630	3.16	0.52	608	97%	3.20	0.46	555	88%	545	3.30	0.40	532	84%	525
2011	671	671	3.10	0.52	639	95%	3.14	0.46	589	88%	568	3.25	0.39	546	81%	551
2012	642	641	3.16	0.51	620	97%	3.19	0.48	561	88%	541	3.28	0.42	513	80%	513
2013	619	619	3.29	0.48	600	97%	3.28	0.45	549	89%	537	3.35	0.41	527	85%	527
2014	641	641	3.21	0.57	612	95%	3.26	0.47	557	87%	546	3.35	0.42	531	83%	527
2015	609	608	3.29	0.52	589	97%	3.31	0.45	530	87%	519	3.39	0.40	494	81%	505
2016	630	630	3.27	0.54	606	96%	3.30	0.45	541	86%	534	3.39	0.39	503	80%	508
2017	595	594	3.34	0.52	575	97%	3.37	0.45	526	89%	511	3.43	0.41	493	83%	492
2018	636	635	3.30	0.52	602	95%	3.32	0.49	553	87%	547	3.44	0.41	526	83%	527
2019	597	597	3.31	0.57	567	95%	3.46	0.40	518	87%	505	3.53	0.37	486	81%	482
2020	587	587	3.39	0.62	566	96%	3.41	0.51	513	87%	490	3.44	0.46	477	81%	468
2021	517	517	3.24	0.70	498	96%	3.30	0.56	454	88%	444	3.38	0.49	428	83%	421
2022	667	667	3.16	0.74	640	96%	3.21	0.61	585	88%	572	0.03	0.52	542	81%	540
2023	641	641	3.20	0.70	625	98%	3.29	0.57	569	89%	556					
2024	527	527	3.20	0.70	504	96%										
3-yr trailing average	588	588	3.20	0.71	567	96%	3.31	0.56	517	88%	502	3.45	0.44	464	82%	457
5-yr trailing average	589	589	3.25	0.67	567	96%	3.34	0.52	525	87%	512	3.45	0.43	482	82%	478
10-yr trailing average	604	604	3.26	0.61	580	96%	3.32	0.49	533	87%	521	3.40	0.42	498	82%	497

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes:

¹ Cohorts are adjusted according to the IPEDS definition for exclusion, which includes students who join the armed forces, called into active duty, or deceased. The adjustment begins upon the semester they did not return.

⁶ This represents the total percentage of students who graduated within the time period.

First-time, Full-time Students (Women)											
Cohort	Cohort size	Cohort size (adjusted) ¹	1st - 4th Year Retention				4-year Graduation Rate				
			Mean 3rd-yr. Cumulative GPA (std. dev.) ²		Fall 4		Spring 4	n		Grad GPA (std. dev.) ⁴	
			n	% of cohort	n	% of cohort	n	% of cohort	n	% of cohort	n
2000	522	521	3.31	0.38	436	84%	433	422	81%	3.39	0.33
2001	517	517	3.34	0.38	443	86%	437	427	83%	3.41	0.34
2002	527	527	3.38	0.34	453	86%	451	438	83%	3.43	0.31
2003	545	545	3.32	0.39	446	82%	441	427	78%	3.39	0.35
2004	580	579	3.27	0.40	483	83%	476	449	78%	3.36	0.33
2005	526	526	3.31	0.38	432	82%	420	420	80%	3.38	0.34
2006	596	596	3.35	0.35	501	84%	498	486	82%	3.42	0.31
2007	546	545	3.36	0.34	473	87%	468	457	84%	3.43	0.30
2008	638	637	3.32	0.37	536	84%	532	518	81%	3.39	0.33
2009	592	592	3.29	0.39	484	82%	480	465	79%	3.37	0.36
2010	630	630	3.36	0.37	521	83%	520	506	80%	3.44	0.32
2011	671	671	3.32	0.35	553	82%	547	537	80%	3.40	0.31
2012	642	641	3.34	0.39	515	80%	514	493	77%	3.43	0.34
2013	619	619	3.40	0.37	528	85%	520	512	83%	3.48	0.31
2014	641	641	3.40	0.38	530	83%	520	515	80%	3.48	0.34
2015	609	608	3.45	0.35	504	83%	492	491	81%	3.51	0.32
2016	630	630	3.45	0.35	510	81%	505	496	79%	3.53	0.30
2017	595	594	3.50	0.35	494	83%	478	474	80%	3.58	0.30
2018	636	635	3.52	0.37	520	82%	507	493	78%	3.59	0.30
2019	597	597	3.55	0.36	473	79%	461	447	75%	3.62	0.30
2020	587	587	3.48	0.41	456	78%	432	431	73%	3.58	0.33
2021	517	517	3.42	0.46	409	79%	392				
3-yr trailing average											
5-yr trailing average											
10-yr trailing average											

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes: see page 1.

First-time, Full-time Students (Women)														
Cohort	Cohort size		Mean 4th-yr. Cumulative GPA (std. dev.)²		1st - 5th Year Retention		Mean 5th-yr. Cumulative GPA (std. dev.)²		1st - 6th Year Retention		6-year Graduation Rate		Grad GPA (std. dev.)⁴	
	Cohort size	(adjusted)¹			Fall 5	Spring 5			Fall 6	Spring 6	n	n⁵	% of cohort⁶	
2000	522	521	2.76	0.67	6	3	1.99	---	1	---	430	8	83%	2.88 0.54
2001	517	517	3.01	0.32	9	6	3.11	0.57	2	---	439	12	85%	3.07 0.44
2002	527	527	3.07	0.35	14	9	---	---	---	1	455	17	86%	3.10 0.31
2003	545	545	2.92	0.48	15	9	3.45	---	1	1	444	17	81%	2.97 0.43
2004	580	579	2.92	0.48	22	13	2.65	0.43	3	2	474	25	82%	3.02 0.43
2005	526	526	2.75	0.25	7	3	2.45	---	1	1	430	10	82%	2.78 0.27
2006	596	596	3.07	0.57	10	4	3.14	---	1	2	503	17	84%	2.99 0.46
2007	546	545	2.62	0.53	6	4	2.12	---	1	2	472	15	87%	2.84 0.44
2008	638	637	2.75	0.57	12	4	2.05	---	1	2	519	1	81%	3.37 ---
2009	592	592	2.96	0.62	12	5	---	---	---	1	466	1	79%	2.59 ---
2010	630	630	2.93	0.62	8	7	2.58	---	1	---	518	12	82%	2.85 0.58
2011	671	671	2.86	0.50	10	5	2.65	0.83	2	---	552	15	82%	3.01 0.52
2012	642	641	2.79	0.67	15	---	3.19	---	1	1	509	16	79%	3.07 0.47
2013	619	619	2.90	0.52	12	7	3.37	0.68	3	---	526	14	85%	2.91 0.51
2014	641	641	2.87	0.41	9	6	3.19	---	1	1	526	11	82%	2.95 0.33
2015	609	608	2.98	0.53	9	6	3.01	0.33	2	1	503	12	83%	3.19 0.55
2016	630	630	3.45	0.35	5	4	---	---	---	---	508	12	81%	3.25 0.34
2017	595	594	3.02	0.56	11	7	---	---	---	---	492	18	83%	3.09 0.53
2018	636	635	2.96	0.64	14	6	2.81	1.00	2	1	513	20	81%	3.14 0.54
2019	597	597	2.96	0.72	8	7	2.33	0.37	2	1				
2020	587	587	2.64	0.55	12	8								
3-yr trailing average	609	609	2.98	0.64	11	6	2.81	1.00	2	1	501	14	82%	3.18 0.47
5-yr trailing average	613	613	3.07	0.56	9	6	3.01	0.66	2	1	511	13	83%	3.08 0.45
10-yr trailing average	627	627	2.97	0.55	10	6	2.97	0.71	2	1	512	11	82%	3.03 0.48

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes: see page 1.

First-time, Full-time Students (Women)													
Cohort	1st - 7th Year Retention				1st - 8th Year Retention				8-year Graduation Rate				
	Mean 6th-yr. Cumulative GPA (std. dev.) ²		Fall 7	Spring 7	Mean 7th-yr. Cumulative GPA (std. dev.) ²		Fall 8	Spring 8	n	n ⁵	% of cohort ⁶	Grad GPA (std. dev.) ⁴	
	---	---	n	n	---	---	n	n	---	---	---	---	
2000	---	---	---	---	---	---	---	---	430	---	83%	---	---
2001	---	---	---	---	---	---	---	---	439	---	85%	---	---
2002	---	---	---	---	---	---	---	---	455	---	86%	---	---
2003	---	---	---	---	---	---	---	---	444	---	81%	---	---
2004	---	---	---	---	---	---	---	---	474	---	82%	---	---
2005	---	---	---	---	---	---	---	---	430	---	82%	---	---
2006	---	---	---	---	---	---	1	---	503	---	84%	---	---
2007	3.84	0.21	11	---	3.14	---	1	---	472	---	87%	---	---
2008	2.32	---	1	1	1.90	---	1	1	521	2	82%	2.32	0.29
2009	---	---	---	---	---	---	---	---	467	1	79%	2.42	---
2010	2.56	---	1	---	---	---	---	---	519	1	82%	2.55	---
2011	---	---	---	---	---	---	---	---	552	---	82%	---	---
2012	2.86	---	1	2	---	---	---	---	512	3	80%	2.58	0.31
2013	---	---	---	---	---	---	---	---	526	---	85%	---	---
2014	3.39	---	1	---	3.75	---	1	1	528	2	82%	3.61	0.29
2015	---	---	---	1	3.55	---	1	1	505	2	83%	3.03	0.85
2016	---	---	---	---	---	---	---	---	508	---	81%	---	---
2017	---	---	---	---	---	---	---	---	---	---	---	---	---
2018	---	---	---	---	---	---	---	---	---	---	---	---	---
3-yr trailing average	---	---	---	1	3.65	---	1	1	520	2	0.83	3.32	0.57
5-yr trailing average	3.39	---	1	1	3.65	---	1	1	525	2	0.83	3.07	0.48
10-yr trailing average	2.78	---	1	1	3.09	---	1	1	511	2	0.83	2.75	0.43

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes: see page 1.

First-time, Full-time Students (Men)																
Cohort	Cohort size		Semester Retention				1st - 2nd Year Retention				1st - 3rd Year Retention					
	Cohort size	(adjusted) ¹	Term GPA (std. dev.) ²	n	% of cohort	Cumulative GPA (std. dev.) ²	n	% of cohort	n	Cumulative GPA (std. dev.) ²	n	% of cohort	n			
2000	388	388	2.91	0.56	367	95%	2.92	0.55	337	87%	329	2.96	0.52	317	82%	302
2001	363	363	2.85	0.65	356	98%	2.89	0.56	333	92%	320	2.95	0.49	303	83%	297
2002	374	374	2.96	0.54	363	97%	2.98	0.51	347	93%	336	3.03	0.47	327	87%	307
2003	370	370	2.97	0.58	359	97%	2.94	0.55	340	92%	330	3.01	0.46	319	86%	307
2004	373	372	2.92	0.67	360	97%	2.96	0.56	337	91%	339	3.03	0.47	323	87%	305
2005	372	372	3.01	0.58	360	97%	3.02	0.50	333	90%	324	3.08	0.46	309	83%	299
2006	350	350	3.00	0.60	339	97%	3.04	0.52	322	92%	314	3.14	0.45	305	87%	294
2007	437	435	3.02	0.56	424	97%	3.06	0.49	399	92%	390	3.12	0.45	367	84%	360
2008	430	430	2.99	0.58	418	97%	2.99	0.52	383	89%	375	3.04	0.47	364	85%	353
2009	376	376	2.92	0.58	355	94%	2.93	0.53	331	88%	324	3.01	0.46	314	84%	308
2010	389	389	3.01	0.63	383	98%	3.04	0.52	351	90%	346	3.14	0.47	337	87%	333
2011	399	398	2.91	0.65	378	95%	2.92	0.54	350	88%	333	3.06	0.45	316	79%	317
2012	430	429	2.98	0.59	415	97%	3.02	0.53	381	89%	374	3.09	0.45	357	83%	356
2013	477	477	3.03	0.58	454	95%	3.08	0.48	418	88%	410	3.15	0.44	395	83%	393
2014	493	493	3.03	0.52	461	94%	3.03	0.53	430	87%	415	3.12	0.47	405	82%	403
2015	424	423	3.07	0.63	410	97%	3.10	0.54	365	86%	349	3.18	0.48	335	79%	329
2016	465	463	3.04	0.64	429	93%	3.09	0.57	383	83%	377	3.20	0.47	362	78%	358
2017	426	426	3.08	0.66	408	96%	3.08	0.60	370	87%	351	3.19	0.49	341	80%	337
2018	432	431	3.06	0.65	424	98%	3.09	0.58	390	90%	377	3.25	0.47	338	78%	345
2019	484	482	3.07	0.65	462	96%	3.25	0.51	419	87%	395	3.31	0.46	368	76%	366
2020	409	408	3.03	0.81	393	96%	3.05	0.70	361	88%	341	3.15	0.55	331	81%	322
2021	436	436	3.01	0.70	415	95%	3.09	0.58	352	81%	338	3.21	0.49	321	74%	320
2022	602	602	2.95	0.83	572	95%	3.07	0.64	505	84%	486	3.18	0.55	456	76%	542
2023	470	469	3.04	0.73	455	97%	3.11	0.63	397	85%	381					
2024	418	416	3.13	0.69	400	96%										
3-yr trailing average	482	481	3.03	0.74	461	96%	3.07	0.64	406	84%	388	3.22	0.50	340	77%	336
5-yr trailing average	470	469	3.04	0.74	450	96%	3.11	0.60	405	86%	387	3.22	0.49	340	78%	338
10-yr trailing average	460	459	3.05	0.68	439	96%	3.09	0.57	399	86%	384	3.18	0.48	355	79%	353

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes:

¹ Cohorts are adjusted according to the IPEDS definition for exclusion, which includes students who join the armed forces, called into active duty, or deceased. The adjustment begins upon the semester they did not return.

² This figure represents the cumulative GPA of those students who returned as noted in the retention figures for the time period.

³ Students in Loyola study abroad or exchange programs are included in the first-to-third year retention figures. Students in a non-Loyola study abroad program will be captured in a subsequent semester.

⁴ This figure represents the GPA at graduation for those students who graduated based upon the n⁵ provided.

⁵ This figure represents the number of students who graduated since the last graduation rate benchmark.

⁶ This represents the total percentage of students who graduated within the time period.

First-time, Full-time Students (Men)											
Cohort	Cohort size		1st - 4th Year Retention				4-year Graduation Rate				
	Cohort size	(adjusted) ¹	Cumulative GPA (std. dev.) ²		Fall 4		Spring 4		Mean Grad GPA (std. dev.) ⁴		
			n	% of cohort	n	% of cohort	n	% of cohort	n	% of cohort	
2000	388	388	3.00	0.49	310	80%	308	277	71%	3.13	0.41
2001	363	363	3.02	0.45	298	82%	297	253	70%	3.16	0.39
2002	374	374	3.10	0.43	324	87%	324	295	79%	3.19	0.37
2003	370	370	3.06	0.44	317	86%	316	277	75%	3.18	0.38
2004	373	372	3.07	0.43	317	85%	318	277	74%	3.19	0.37
2005	372	372	3.14	0.44	310	83%	308	291	78%	3.23	0.38
2006	350	350	3.19	0.43	298	85%	293	263	75%	3.30	0.37
2007	437	434	3.16	0.43	366	84%	355	320	74%	3.26	0.37
2008	430	429	3.12	0.45	350	81%	346	307	71%	3.22	0.40
2009	376	376	3.09	0.41	309	82%	303	275	73%	3.21	0.35
2010	389	389	3.22	0.42	329	85%	327	310	80%	3.31	0.37
2011	399	398	3.32	0.42	316	79%	316	285	72%	3.23	0.37
2012	430	429	3.14	0.42	351	82%	348	317	74%	3.26	0.37
2013	477	477	3.21	0.41	385	81%	380	358	75%	3.30	0.36
2014	493	493	3.18	0.43	400	81%	397	361	73%	3.28	0.38
2015	424	423	3.24	0.45	330	78%	323	302	71%	3.36	0.35
2016	465	463	3.25	0.44	353	76%	348	327	71%	3.38	0.36
2017	426	426	3.27	0.46	333	78%	325	297	70%	3.38	0.38
2018	432	431	3.30	0.46	344	80%	335	289	67%	3.43	0.37
2019	484	482	3.34	0.43	360	75%	358	310	64%	3.46	0.34
2020	409	408	3.20	0.52	320	78%	319	253	62%	3.41	0.38
2021	436	436	3.27	0.46	314	72%	302				
3-yr trailing average	442	440	3.28	0.47	341	78%	337	299	67%	3.42	0.36%
5-yr trailing average	443	442	3.27	0.46	342	77%	337	305	69%	3.40	0.36%
10-yr trailing average	444	443	3.24	0.44	349	79%	345	316	72%	3.34	0.37%

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes: see page 4.

First-time, Full-time Students (Men)															
Cohort	Cohort size		Cumulative GPA (std. dev.) ²		1st - 5th Year Retention		Cumulative GPA (std. dev.) ²		1st - 6th Year Retention		6-year Graduation Rate		Mean Grad GPA (std. dev.) ⁴		
	Cohort size	(adjusted) ¹			Fall 5	Spring 5			Fall 6	Spring 6	n	n ⁵	% of cohort ⁶		
2000	388	388	2.40	0.42	22	15	2.19	0.19	4	1	303	26	78%	2.50	0.35
2001	363	363	2.58	0.35	37	23	2.64	0.66	7	3	291	38	80%	2.67	0.40
2002	374	374	2.55	0.43	19	11	2.43	---	1	1	319	24	85%	2.65	0.36
2003	370	370	2.66	0.52	26	16	2.42	0.73	2	1	311	34	84%	2.76	0.47
2004	373	372	2.64	0.42	29	16	2.30	0.37	6	3	309	32	83%	2.68	0.31
2005	372	372	2.65	0.39	17	7	---	---	---	1	312	21	84%	2.74	0.41
2006	350	350	2.69	0.38	16	6	2.63	0.51	3	---	293	30	84%	2.79	0.46
2007	437	434	2.83	0.58	25	13	---	---	---	1	354	34	81%	2.88	0.44
2008	430	430	2.73	0.38	22	17	2.45	0.33	5	2	342	35	80%	3.17	0.43
2009	376	376	2.73	0.44	21	11	2.89	0.44	4	3	279	4	74%	2.59	0.37
2010	389	389	2.85	0.47	13	7	2.52	0.71	2	1	327	17	84%	2.88	0.46
2011	399	398	2.65	0.81	20	9	2.49	0.06	3	---	314	29	79%	2.81	0.49
2012	430	429	2.67	0.36	19	---	2.21	---	1	1	345	28	80%	2.75	0.37
2013	477	477	2.75	0.44	23	19	2.37	0.46	3	4	381	23	80%	2.84	0.42
2014	493	493	2.75	0.48	24	12	2.34	0.04	2	1	394	33	80%	2.82	0.43
2015	424	423	2.56	0.51	16	10	2.36	0.19	3	3	327	25	77%	2.62	0.41
2016	465	463	2.58	0.41	21	12	2.52	0.22	4	---	352	25	76%	2.76	0.38
2017	426	426	2.69	0.39	19	11	2.65	0.09	2	---	329	32	77%	2.97	0.38
2018	432	431	2.96	0.54	36	18	2.53	0.54	6	3	332	43	77%	2.99	0.47
2019	484	482	2.68	0.40	27	19	2.67	0.56	5	4					
2020	409	408	2.43	0.37	25	19									
3-yr trailing average	447	446	2.78	0.45	27	14	2.57	0.29	4	3	336	27	77%	2.78	0.39
5-yr trailing average	446	445	2.69	0.45	24	13	2.48	0.22	3	2	357	28	78%	2.80	0.40
10-yr trailing average	442	441	2.71	0.48	22	12	2.49	0.31	3	2	339	25	79%	2.82	0.41

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes: see page 4.

First-time, Full-time Students (Men)												
Cohort	Cumulative GPA (std. dev.) ²		1st - 7th Year Retention		Cumulative GPA (std. dev.) ²		1st - 8th Year Retention		n	n ⁵	8-year Graduation Rate % of cohort ⁶	Grad GPA (std. dev.) ⁴
			Fall 7	Spring 7			Fall 8	Spring 8				
2000	---	---	---	---	---	---	---	---	303	---	78%	---
2001	---	---	---	---	---	---	---	---	291	---	80%	---
2002	---	---	---	---	---	---	---	---	319	---	85%	---
2003	---	---	---	---	---	---	---	---	311	---	84%	---
2004	---	---	---	---	---	---	---	---	309	---	83%	---
2005	---	---	---	---	---	---	---	---	312	---	84%	---
2006	---	---	---	---	---	---	---	---	293	---	84%	---
2007	3.64	0.63	3	1	---	---	1	1	355	1	82%	3.22
2008	3.51	---	1	---	3.14	---	---	---	342	---	80%	---
2009	2.13	---	1	1	3.03	1.37	2	---	329	1	88%	3.58
2010	4.00	---	1	---	---	---	---	---	328	1	84%	2.50
2011	---	---	---	---	2.10	---	1	1	314	---	79%	---
2012	---	---	---	---	---	---	---	---	345	---	80%	---
2013	3.24	---	1	1	2.82	0.79	3	2	387	2	81%	2.72
2014	2.37	0.03	2	1	---	---	---	---	399	---	81%	---
2015	---	---	---	---	---	---	---	---	327	---	77%	---
2016	---	---	---	---	---	---	---	---	353	1	76%	2.13
2017	---	---	---	---	---	---	---	---	---	---	---	---
2018	2.44	0.69	2	3	---	---	---	---	---	---	---	---
3-yr trailing average	---	---	---	---	---	---	---	---	371	2	80%	2.72
5-yr trailing average	2.81	0.03	2	1	2.82	0.79	3	2	354	2	80%	2.72
10-yr trailing average	3.05	0.03	1	1	2.77	1.08	2	1	342	1	82%	3.00

Sources: Office of Institutional Research Fall and Spring Student Headcounts, Hiatus reports, Degree files, and FTFT Cohort files.

Notes: see page 4.