

Pre-service mathematics programs for early and middle childhood teachers

Ohio State University

Ohio State Program

Here are a few of the ingredients to what we view as a successful program for the ECE group:

- 1) 50-student class size (this has become quite manageable for discussions and those who don't present in the whole class discussion are still required to be actively engaging with the problems because of the small group work)
- 2) small group work in every class (students are always thinking about the problems before any "lecture" and must practice articulating their ideas with each other)
- 3) the quality of the activities on which we base our discussions (this is due to choice of Beckmann as a text but also to collection of other outside activities all with the both appropriate intellectual challenge AND relationship to children's thinking or a viable K-3 classroom activity)

Here are a few of the ingredients to what we view as a successful program:

- 4) excellent TAs (hand-picked by the TA coordinator, but now also self-nominated after hearing about the work we are doing)
- 5) ties to education and experiences in schools (this helps with motivation of the course; several students have told us that this is the only course they have taken that relates directly to what they will teach, others have commented that they have been learning about how children think from our math classes)
- 6) communication with other departments, e.g., Special Ed (this has smoothed our path from the beginning when we first changed the requirements of the Math 105 students;

Here are a few of the ingredients to what I view as a successful program:

7) the 3-course sequence for early childhood majors seems to be helpful. It helps develop a cohort; we now also thoroughly understand and can articulate our program goals as they develop across the courses; students can see/feel their own growth over the 3 quarters. This has also allowed us to gradually move students from looking for formulas to apply to focusing on reasoning and explanation.

8) Finally, the head of T&L in the Education College has commented publicly that the students no longer dread teaching math! (We'll have to get that one in writing!)

Middle Childhood

For the MCE-math majors, many of the same features are at work! We are just less experienced at articulating those goals and have not had much feedback yet!

Enrollment Data -- Mathematics Courses for Teachers, since 2002

Enrollment in Mathematics Courses for Teachers since 2002**									
									Quarter
Quarter	Math 105*	Math 106*	Math 107*	Math 111 (194)	Math 108	Math 109	Math 113	Math 212	Totals
Au 2002	160	0	0	0	0	0	0	0	160
Wi 2003	121	39	0	0	0	0	0	0	160
Sp 2003	0	0	0	0	0	0	0	0	0
Yr 2002-03	281	39	0	0	0	0	0	0	320
Au 2003	165	0	0	0	0	0	0	0	165
Wi 2004	133	39	0	0	0	0	0	0	172
Sp 2004	0	48	5	0	0	0	0	0	53
Yr 2003-04	298	87	5	0	0	0	0	0	390
Au 2004	204	0	0	0	0	0	0	0	204
Wi 2005	195	135	0	0	0	0	0	0	210
Sp 2005	0	50	24	0	0	0	0	0	74
Su 2005	25	0	0	0	0	0	0	0	25
Yr 2004-05	334	155	24	0	0	0	0	0	513
Au 2005	190	0	11	0	0	0	0	0	201
Wi 2006	133	73	0	0	0	0	0	0	206
Sp 2006	0	65	38	6	0	0	0	0	109
Su 2006	25	0	0	0	0	0	0	0	25
Yr 2005-06	348	138	49	6	0	0	0	0	541
Au 2006	156	0	26	0	0	0	0	0	182
Wi 2007	100	146	0	0	0	0	0	0	246
Sp 2007	0	111	75	21	0	0	0	0	207
Su 2007	25	0	0	0	0	0	0	0	25
Yr 2006-07	281	257	101	21	0	0	0	0	660

*Totals do not separate day and night sections.

**Note: All courses are 5 credit hours.

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Enrollment in Mathematics Courses for Teachers since 2002**									
									Quarter
Quarter	Math 105*	Math 106*	Math 107*	Math 111 (194)	Math 108	Math 109	Math 110	Math 212	Totals
Au 2007	209	0	72	0	0	0	0	0	281
Wi 2008	116	197	0	0	0	0	0	0	303
Sp 2008	0	122	80	21	0	0	0	0	223
Su 2008	20	0	0	0	0	0	0	0	20
Yr 2007-08	345	309	152	21	0	0	0	0	827
Au 2008	156	0	77	0	43	0	0	0	276
Wi 2009	91	134	0	0	0	39	0	0	264
Sp 2009	0	86	72	16	0	0	0	0	174
Su 2009	23	0	0	0	0	0	0	0	23
Yr 2008-09	270	220	149	16	43	39	0	0	737
Au 2009	166	0	51	0	59	0	35	0	311
Wi 2010	100	153	0	13	0	52	0	0	318
Sp 2010	0	91	69	0	0	0	0	14	174
Su 2010	25	0	0	0	0	0	0	0	25
YTD 2009-10	291	244	120	13	59	52	35	14	828
Au 2010	142	0	78	0	60	0	37	0	317
Wi 2011	92	121	0	17	28	54	0	0	312
Sp 2011	0	78	70	0	0	23	0	8	179
Su 2011									0
YTD 2010-11	234	199	148	17	88	77	37	8	808
Projected									
Autumn 2011	150	0	90	0	60	0	60	0	
Winter 2011	100	150	0	40	60	60	0	0	
Spring 2011	0	150	90	0	0	60	120	40	

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