PART B. REQUIRED COURSE FORM

Course title:	Principles of Immunology
Sponsoring department or unit:	The course is not based in any one department. The following departments are all represented in the teaching faculty: Pathology, Medicine, Oncology, Pediatrics, and Molecular Biology and Genetics
Name of course director:	Jonathan Schneck, M.D., Ph.D.

List all organizational units (e.g., physiology department, nursing school, library), including the lead department, with ongoing involvement in the course, and the number of instructional staff from each such unit:

Organizational Unit	Number of Teaching Staff Involved
Pathology	4
Medicine	6
Pediatrics	1
Oncology	4
MGC	1

Course Objectives

Are there written objectives for the course? (check)

Yes	x	**No**	

Briefly summarize the objectives/content areas covered in the course.
Our goals are to teach the first year students the basic principles of immunology and how that relates to clinical medicine. We cover different basic immunology topics in each lecture and where relevant how that relates to specific clinical issues. In addition we have three clinical correlations where the students have a chance to interact with patients learning more about both specific immune-associated diseases as well as the difficulties in coping with these illnesses.

Preparation for Teaching

If graduate students, postdoctoral fellows in the biomedical sciences, or residents teach in the course (as lecturers, small group facilitators, laboratory instructors), describe how they are informed about the course objectives and prepared for their teaching role.
The course, including small group and lab sessions, is run entirely by JHMI faculty.

If the entire course is taught at more than one site (e.g., at geographically separate campuses), describe how faculty members at all sites are oriented to the objectives and grading system.

Student Evaluation

If NBME subject (shelf) examinations are used, give the mean scores for the last three classes:

Year:			
Score:			

Check all the formats that are used in examinations or other evaluations that students must take in order to pass the course:

	Multiple-choice, true/false, matching questions		Laboratory practical items
x	Fill-in, short answer questions		Problem-solving exercises
x	Essay questions or papers		Presentations
	Oral exams		Other (describe)

Briefly describe any formative assessment activities (practice exams, quizzes, etc.)
Practice exam questions are reviewed in small group session towards the end of the course. Most often old exams are used to review for the final.

Is there a narrative evaluation submitted in addition to the course grade? (check)

Yes		**No**	x

Course Outcomes/Evaluation

Comment on the adequacy of faculty and other resources to teach the course (e.g., educational space, computer hardware and software, support personnel).
Administrative support for the course consists of a part time FTE that helps organize the course and importantly the course manual. There is otherwise no specific administrative support given to the faculty to help prepare for the course. Percent effort for faculty is also kept to a minimum.

Provide a summary of student feedback on the course (and any other available evaluation data) for the past two years. If the course is new or significantly revised, provide evaluation data for the new version of the course only. If problems have been identified by student evaluations or other data, describe how they are being addressed.
We use an on-line course evaluation filled out by over 95% of all students to get student feedback (see attached spreadsheet for the last two years' performance). In general the course is rated extremely high by the students as representing one of the best medical school courses they have in the first year. We use these evaluation extensively to modify the course strengthen areas that are considered weak and eliminate approaches which we fell have failed. By way of example based on student feedback we changed the entire structure of the first half of the course and also added a new lecture this past year. Feedback from the student evaluations is also discussed with each individual faculty member to ensure that it is appropriately considered.

Identify major successes in the course and problems to be overcome.

Our biggest problem is the short amount of time we have with the medical students. The course is a very intense two-week course but really should be a three-week course, substantially longer. This would allow us to better integrate the basic immunology concepts with medically relevant problems and increase overall value of the course for the students.

Our major success is the fact that Principles of Immunology is so well received by the students. This is in part due to the way the material is presented and where possible integrated with clinical medicine but also because the faculty is tremendously committed to teaching. Thus the same faculty who also lecture in the course runs all small groups. Most of the faculty attends all lectures, even those given by other members of the faculty. We are therefore available for questions after each lecture and can answer issues/problems that the students identify immediately. I know that other courses have complained about attendance but we have not seen this problem during our course as students eagerly ask questions of all the faculty that attend the lectures afterwards. I believe that this commitment to teaching the students has helped make us very successful in teach

IMMUNOLOGY LECTURES

Staff	Course	Department	Lecture	J.C.	Disc	Lab	C.C.	Rev	Exam	PI / T	totals
Immunology											
Schneck-course leade	Immun	pathology	2	2	7.75	5.5			10		27.25
Powell	Immun	oncology	1	2	7.75	5.5					16.25
Lederman	Immun	pediatris	1.25	2	7.75	5.5	2				18.5
Levitsky	Immun	oncology	2	2	7.75	5.5					17.25
Lowenstein	Immun	medicine	1								1
Baldwin	Immun	patholgy	1.25								1.25
Siliciano	Immun	medicine	3.5	2	7.75	5.5	2	1.5			22.25
Rosen	Immun	medicine	1				2				3
Soloski	Immun	medicine	3.25								3.25
Pardoll	Immun	oncology	1.25								1.25
Winkelstein	Immun	pediatrics	1.25								1.25
Sadegh-Nasseri	Immun	pathology	1.25								1.25
Saini	Immun	allergy	1								1
Desiderio	Immn	MBG	4.25								4.25
Jaffee		oncology		2	7.75	5.5					15.25
Carruth		medicine		2	7.75	5.5					15.25
Ray		medicine		2	7.75	5.5			5		20.25
Armstrong				2	7.75	5.5					15.25
Staff	Immun		25.25	18	69.75	49.5	6	1.5	15	0	185

Each Teaching element lectures, labs, clinical correlation, and small groups instruction is evaluated on a on 1(poor)-5(outstanding scale). Results are summarized below

lecture	percent	score	weighting d	score 2003	percent	score	weighting	score 2004	
intro (Schneck)	0.57664	5	2.8832	**4.43056**	0.4	5	2	**4.152**	0.61825734
	0.30656	4	1.22624		0.43	4	1.72	**0.95713677**	
	0.10218	3	0.30654		0.13	3	0.39		
	0.00729	2	0.01458		0.021	2	0.042		
	0	1	0		0	1	0		
Innate Immunity (Mahoney)					0.21	5	1.05	**3.9455**	0.59610205
					0.57	4	2.28	**0.93622609**	
					0.1875	3	0.5625		
					0.023	2	0.046		
					0.007	1	0.007		
Ig I, II & III (Desiderio)	0.10218	5	0.5109	**3.64955**	0.12	5	0.6	**3.3192**	0.52103342
Ig I and II for 2004	0.39416	4	1.57664		0.314	4	1.256		
	0.35036	3	1.05108		0.3714	3	1.1142		
	0.10948	2	0.21896		0.164	2	0.328		
	0.29197	1	0.29197		0.021	1	0.021		
B cell development (Sen)					0.093	5	0.465	**2.9718**	0.47301958
					0.2578	4	1.0312		
					0.289	3	0.867		
					0.2578	2	0.5156		
					0.093	1	0.093		
Antibody Effector…(Lederman)	0.19708	5	0.9854	**3.83205**	0.207	5	1.035	**3.901**	0.59117595
	0.55474	4	2.21896		0.542	4	2.168		
	0.20437	3	0.61311		0.228	3	0.684		
	0.00729	2	0.01458		0.007	2	0.014		
	0	1	0		0	1	0		
Phagocytic Cells (Lowenstein)	0.17518	5	0.8759	**3.36634**	0.132	5	0.66	**3.6578**	0.56321996
Innate Immunity II (Lowenstein) 2004	0.42335	4	1.6934		0.5546	4	2.2184		
	0.25547	3	0.76641		0.226	3	0.678		
	0.00802	2	0.01604		0.0312	2	0.0624		
	0.01459	1	0.01459		0.039	1	0.039		
Complement (Baldwin)	0.41605	5	2.08025	**4.21887**	0.4	5	2	**4.2262**	0.62595005
	0.41605	4	1.6642		0.4857	4	1.9428		
	0.15328	3	0.45984		0.085	3	0.255		
	0.00729	2	0.01458		0.0142	2	0.0284		
	0	1	0		0	1	0		
T Cell Ag Recognition I & II (Siliciano)	0.56204	5	2.8102	**4.42328**	0.6357	5	3.1785	**4.4615**	0.6494809
	0.34306	4	1.37224		0.257	4	1.028		
	0.07299	3	0.21897		0.085	3	0.255		
	0.00729	2	0.01458		0	2	0		
	0.00729	1	0.00729		0	1	0		
Dendritic Cells (Rosen)	0.39416	5	1.9708	**4.09486**	0.3214	5	1.607	**4.0064**	0.60275431
	0.38686	4	1.54744		0.4642	4	1.8568		
	0.18248	3	0.54744		0.1714	3	0.5142		
	0.01459	2	0.02918		0.0142	2	0.0284		
	0	1	0		0	1	0		
Flow Cytometry (Soloski)	0.08759	5	0.43795	**3.19702**	0.2857	5	1.4285	**3.7785**	0.57731943
	0.31386	4	1.25544		0.392	4	1.568		
	0.38686	3	1.16058		0.228	3	0.684		
	0.14598	2	0.29196		0.035	2	0.07		
	0.05109	1	0.05109		0.028	1	0.028		
T cell development (Pardoll)	???				0.1714	5	0.857	**3.811**	0.58103895
					0.557	4	2.228		
					0.235	3	0.705		
					0.007	2	0.014		
					0.007	1	0.007		
T Cell Tolerance (Powell)	0.29927	5	1.49635	**4.07295**	0.46	5	2.3	**4.16042**	0.61913718
	0.51824	4	2.07296		0.335	4	1.34		
	0.16788	3	0.50364		0.164	3	0.492		
	0	2	0		0.01421	2	0.02842		
	0	1	0		0	1	0		
Lymphocyte Activation (Desiderio)	0.12408	5	0.6204	**3.29187**	0.1357	5	0.6785	**3.1567**	0.49923331
	0.35766	4	1.43064		0.2642	4	1.0568		
	0.31386	3	0.94158		0.35	3	1.05		
	0.10948	2	0.21896		0.1357	2	0.2714		
	0.08029	1	0.08029		0.1	1	0.1		

T Cell Effector Function I & II (Soloski	0.20437	5	1.02185	**3.86853**	0.2857	5	1.4285	**3.9619**	0.59790351
	0.56204	4	2.24816		0.45	4	1.8		
	0.18978	3	0.56934		0.235	3	0.705		
	0.01459	2	0.02918		0.0142	2	0.0284		
	0	1	0		0	1	0		
Lymphoid Organs (Levitsky)	0.17518	5	0.8759	**3.42313**	0.207	5	1.035	**3.6752**	0.56528098
	0.32846	4	1.31384		0.421	4	1.684		
	0.31868	3	0.95604		0.2714	3	0.8142		
	0.10218	2	0.20436		0.05	2	0.1		
	0.07299	1	0.07299		0.042	1	0.042		
Primary Immunodefiency (Winkelstein	0.21167	5	1.05835	**3.67873**					
	0.40145	4	1.6058						
	0.28467	3	0.85401						
	0.07299	2	0.14598						
	0.01459	1	0.01459						
Alloreactivity (Schneck)	0.24817	5	1.24085	**3.75177**	0.35	5	1.75	**4.007018**	0.60282129
	0.39416	4	1.57664		0.4214	4	1.6856		
	0.27007	3	0.81021		0.17857	3	0.53571		
	0.05839	2	0.11678		0.01428	2	0.02856		
	0.00729	1	0.00729		0.007148	1	0.007148		
Tumor Immunology (Levitsky)	0.06504	5	0.3252	**2.89428**	0.1214	5	0.607	**3.19979**	0.50512148
	0.29268	4	1.17072		0.35714	4	1.42856		
	0.27642	3	0.82926		0.2857	3	0.8571		
	0.23577	2	0.47154		0.11428	2	0.22856		
	0.09756	1	0.09756		0.07857	1	0.07857		
NK Cells (Sadegh-Nasseri)	0.06569	5	0.32845	**2.80287**	0.0357	5	0.1785	**2.64251**	0.42201664
	0.22627	4	0.90508		0.1928	4	0.7712		
	0.29927	3	0.89781		0.32857	3	0.98571		
	0.29197	2	0.58394		0.2857	2	0.5714		
	0.08759	1	0.08759		0.1357	1	0.1357		
Allergy (Saini)	0.21167	5	1.05835	**3.54004**	0.4214	5	2.107	**4.12838**	0.61577967
	0.32846	4	1.31384		0.37857	4	1.51428		
	0.35766	3	1.07298		0.1357	3	0.4071		
	0.03649	2	0.07298		0.05	2	0.1		
	0.02189	1	0.02189		0	1	0		
Vaccines (Siliciano)	0.52554	5	2.6277	**4.35759**	0.4928	5	2.464	**4.31392**	0.63487209
	0.36496	4	1.45984		0.37857	4	1.51428		
	0.08029	3	0.24087		0.06428	3	0.19284		
	0.01459	2	0.02918		0.0714	2	0.1428		
	0	1	0		0	1	0		
Vaccines (Emens/Jaffee)	0.20437	5	1.02185	**3.65683**	0.2428	5	1.214	**3.59964**	0.55625907
	0.41605	4	1.6642		0.3857	4	1.5428		
	0.25547	3	0.76641		0.22857	3	0.68571		
	0.09489	2	0.18978		0.06428	2	0.12856		
	0.01459	1	0.01459		0.02857	1	0.02857		
Review Lecture (Siliciano)	0.9562	5	4.781	**4.92696**	0.85	5	4.25	**4.7734**	0.67882783
	0.03649	4	0.14596		0.1148	4	0.4592		
	0	3	0		0.0214	3	0.0642		
	0	2	0		0	2	0		
	0	1	0		0	1	0		
AIDS (Siliciano)	0.82481	5	4.12405	**4.74444**	0.6714	5	3.357	**4.47831**	0.65111415
	0.13868	4	0.55472		0.2214	4	0.8856		
	0.02189	3	0.06567		0.07857	3	0.23571		
	0	2	0		0	2	0		
	0	1	0		0	1	0		
Autoimmunity (Rosen)	0.27007	5	1.35035	**3.80284**	0.2428	5	1.214	**3.64208**	0.56134948
	0.40145	4	1.6058		0.3857	4	1.5428		
	0.24817	3	0.74451		0.257	3	0.771		
	0.05109	2	0.10218		0.05	2	0.1		
	0	1	0		0.01428	1	0.01428		
Question 44									
Lederman: Primary Immunodeficiences					0.2343	5	1.1715	**3.59905**	0.55618788
Clinical Correlation					0.4296	4	1.7184		
					0.2031	3	0.6093		
					0.0343	2	0.0686		
					0.03125	1	0.03125		

JC Week 1: Isolation of a cDNA clone	0.12408	5	0.6204	**3.39409**		0.1357	5	0.6785	**3.40675**	0.53234026
	0.35766	4	1.43064			0.32857	4	1.31428		
	0.37956	3	1.13868			0.4142	3	1.2426		
	0.08759	2	0.17518			0.0714	2	0.1428		
	0.02919	1	0.02919			0.02857	1	0.02857		
JC Week 2: Projection of an Immunological Self Within the Thymus…	0.25547	5	1.27735	**3.60578**		0.2	5	1	**3.64999**	0.56229167
	0.29927	4	1.19708			0.42857	4	1.71428		
	0.32116	3	0.96348			0.25	3	0.75		
	0.05839	2	0.11678			0.07857	2	0.15714		
	0.05109	1	0.05109			0.02857	1	0.02857		
Hepatitis serology lab	0.29197	5	1.45985	**3.86853**		0.34285	5	1.71425	**3.97049**	0.59884411
	0.40145	4	1.6058			0.39285	4	1.5714		
	0.22627	3	0.67881			0.19258	3	0.57774		
	0.05839	2	0.11678			0.04285	2	0.0857		
	0.00729	1	0.00729			0.0214	1	0.0214		
Gene rearrangement lab	0.24087	5	1.20435	**3.78825**		0.3	5	1.5	**3.7211**	0.57067134
	0.37956	4	1.51824			0.3214	4	1.2856		
	0.32116	3	0.96348			0.2428	3	0.7284		
	0.05109	2	0.10218			0.09285	2	0.1857		
	0	1	0			0.0214	1	0.0214		
T cell development lab	0.20437	5	1.02185	**3.56195**		0.2571	5	1.2855	**3.7352**	0.57231386
	0.28467	4	1.13868			0.3571	4	1.4284		
	0.40145	3	1.20435			0.2857	3	0.8571		
	0.09489	2	0.18978			0.0714	2	0.1428		
	0.00729	1	0.00729			0.0214	1	0.0214		
Lymphoid organs	0.11678	5	0.5839	**3.31377**		0.16428	5	0.8214	**3.32838**	0.5222329
	0.31386	4	1.25544			0.31428	4	1.25712		
	0.38686	3	1.16058			0.2857	3	0.8571		
	0.13868	2	0.27736			0.16428	2	0.32856		
	0.03649	1	0.03649			0.0642	1	0.0642		
Question 32										
Question 33										
Small Group: Schneck	0.21897	5	1.09485	**4.48684442**		0.1214	5	0.607	**4.73764202**	0.67556224
	0.02919	4	0.11676			0.007	4	0.028		
	0.01459	3	0.04377			0	3	0		
	0	2	0			0	2	0		
	0.02189	1	0.02189	**1.27727**		0.00714	1	0.00714		
Percent answered	0.28464			**0.28467**				% SG	**0.13554**	86.446
Weighted score										
Small Group : Levitsky	0.07299	5	0.36495	**3.95032545**		0.1428	5	0.714	**4.10007003**	0.61279127
	0.02919	4	0.11676			0.06428	4	0.25712		
	0.01459	3	0.04377			0.0571	3	0.1713		
	0.02189	2	0.04378			0.00714	2	0.01428		
	0.00729	1	0.00729			0.01428	1	0.01428		
Percent answered	0.14595			**0.14595**	85.405				**0.2856**	71.44
Weighted score										
Small Group: Lederman	0.05839	5	0.29195	**3.78267604**		0.1071	5	0.5355	**4.57894737**	0.66076565
	0.05109	4	0.20436			0.00714	4	0.02856		
	0.02189	3	0.06567			0.01428	3	0.04284		
	0.03649	2	0.07298			0.00714	2	0.01428		
	0	1	0			0	1	0		
Percent answered	0.16786			**0.16786**	83.214				**0.13566**	86.434
Weighted score										
Small Group: Ray	0.13868	5	0.6934	**4.65248734**		0.06428	5	0.3214	**4.25013128**	0.62840234
	0.01459	4	0.05836			0.0357	4	0.1428		
	0.00729	3	0.02187			0	3	0		
	0	2	0			0.00714	2	0.01428		
	0.00729	1	0.00729			0.00714	1	0.00714		
Percent answered				**0.16785**	83.215				**0.11426**	88.574
Weighted score										
Small Group: Powell	0.13138	5	0.6569	**4.60899613**		0.05714	5	0.2857	**3.85043064**	0.5855093
	0.02189	4	0.08756			0.04285	4	0.1714		
	0.00729	3	0.02187			0.01428	3	0.04284		
	0	2	0			0.0214	2	0.0428		
	0.00729	1	0.00729			0.00714	1	0.00714		
Percent answered				**0.16785**	83.215				**0.14281**	85.719
Weighted score				**27.4590177**						

Small Group: Siliciano	0.16788	5	0.8394	**4.73106719**		0.1428	5	0.714	**4.86363636**		0.6869611
	0.00729	4	0.02916			0.00714	4	0.02856			
	0.00729	3	0.02187			0.00714	3	0.02142			
	0	2	0			0	2	0			
	0.00729	1	0.00729			0	1	0			
Percent answered				**0.18975**	81.025				**0.15708**	84.292	
Weighted score											
Small Group: Jaffee	0.05839	5	0.29195	**3.45846417**							
	0.03649	4	0.14596								
	0.02919	3	0.08757								
	0.02919	2	0.05838								
	0.02189	1	0.02189								
Percent answered				**0.17515**	82.485						
Weighted score				**19.7457275**							
Small Group: Carruth	0.16058	5	0.8029	**4.65412385**		0.11428	5	0.5714	**4.75017505**		0.67670961
	0.00729	4	0.02916			0.0214	4	0.0856			
	0.01459	3	0.04377			0.00714	3	0.02142			
	0	2	0			0	2	0			
	0.00729	1	0.00729			0	1	0			
Percent answered				**0.18975**	81.025				**0.14282**	85.718	
Weighted score											
Small Group: Soloski						0.0714	5	0.357	**4.6249453**		0.6651066
						0.04285	4	0.1714			
						0	3	0			
						0	2	0			
						0	1	0			
									0.11425	88.575	
Small Group Alternate: Armstrong	0.10569	5	0.52845	**0.61788**		0.0428	5	0.214	**4.55527873**		0.65851496
	0.00813	4	0.03252			0.01428	4	0.05712			
	0.01626	3	0.04878			0.00714	3	0.02142			
	0	2	0			0	2	0			
	0.00813	1	0.00813			0	1	0			
Percent answered				**0.13822**					**0.06422**	93.578	
Weighted score				**4.4702648**							
Small Group Alternate: Monie	0.03252	5	0.1626	**0.19512**							
	0	4	0								
	0.00813	3	0.02439								
	0	2	0								
	0.00813	1	0.00813								
Percent answered				**0.04879**							
Weighted score				**3.99918016**							

	Average	**S.D.**	**average**	**ave-3sd**	**ave+3sd**
Lectures	0.57712	0.0612	3.77675147	2.4748	5.7636095
Clinical Correlations	0.58955	0.0534	3.88642691	2.6879	5.6193339
Journal clubs	0.54732	0.0212	3.52627331	3.0463	4.0818074
Labs	0.56602	0.0319	3.68142157	2.953	4.589495
Small groups	0.65004	0.0338	4.46720516	3.5361	5.6434797