Item	company	details	part num	quant	unit cost	total cost	Notes
Photon Counting							
Photon counters	ALPhA www.advlab.org	One set of (4) Single-Photon Counting Modules (Excelitas), for educational use	SPCM-EDU CD3375	1	6000	6000	I have found ALPhA to be an unreliable supplier. If you have trouble getting these detectors, use the ones from Digikey, below.
Photon counters	Digikey.com	Excelitas SPCM-AQRH-50-FC	SPCM-AQRH-50-FC	4	2700	10800	alternative if you can't get the ALPhA detectors
power supplies for photon counters	Digikey.com	5V, 3A wall wort	SWI18-5-E-P6R	4	12.25	49	
fiber patch cable	Fibertronics	1MM 62.5 miccron, duplex	PC-HH6D30V01M	4	7	28	There are 2 patch cables toegether, you can tear them appart. For the final link between the RG780 filters and the SPCM's, wrap the fiber in black tape to keep our stray background light.
Surge protector		computer-type surge protecting power strip for SPCM power supplies				0	
Coincidence unit	http://reddogphysics.com/	coincidence unit	cd48	1	300	300	This unit is easy to use and works reasonably well. It has a coincidence window of 40-50ns, which means you'll probably want to subtract accidental counts
FPGA coincidence unit	www.terasic.com	FPGA	DE2-115	1	700		This unit has an 8 ns coincidence window, so you get less background and lower g(2) values. But you have to install the software (available from my website) and build a box to get the signals in.
Computer with LabVIEW						0	
Optical table or breadboard		4x6 is luxury, 3x5 is sufficient. 3x4 might work, but I think you'd be cramped				0	
						0	
						0	
Down Conversion						0	
Violet laser - 405 nm, > 50 mW, runs on 12VDC		laser with TEC and power supply		1			I no longer give a specific source, because these companies come and go. You can get 500mW (which is A LOT of power--turn the power down to 100 mW or so) laser modules for < $100, just do a web search. Sometimes sold as laser engravers.
laser power supply	your favorite supplier	wall wart power supply					
Mount for laser	You'll need to build something						
Beam block for violet laser	Thorlabs		LB1	1	51	51	
2 turning mirrors for violet light, with mount	Thorlabs		KM100-E02	2	106	212	
iris for defining violet beam	Thorlabs		ID12	1	48	48	
Violet half-wave plate	Newlightphotonics.com		WPA03-H-405	1	309	309	
Mount for violet half-wave plate	Thorlabs		RSP1D	1	95	95	
Down-conversion crystal (long crystal for single-crystal expts)	Newlight Photonics	BBO: 5x5x3 mm, theta = 29.3 deg, Type I PDC, cone angle 3 deg, AR coated at 810/405 nm, mounted 1" anodized Al holder	NCBBO5300-405(I)-HA3	1	599	599	
Mount for down-conversion crystal	Thorlabs		KM100	1	40	40	
Linear polarizer	Thorlabs		LPNIRE100-B	1	119	119	
rotation stage for linear polarizer	Thorlabs		RSP1D	1	95	95	
base	Thorlabs	base	BA1	8	6	48	
2" post	Thorlabs	2" post	TR2	8	5	40	
2" post holder	Thorlabs	2" post holder	PH2	8	8	64	
Laser Safety glasses	lasershields.com	the YLW filter eliminates the strong blue pump, but allows you to see the 810nm alignment laser. To eliminate that as well, get filter CYN	Filter: YLW	1	96	96	
Alignment Laser							

808nm laser diode module		10mW, runs on a few VDC		1			again, these suppliers come and go. You can find an 808nm laser module for just a few 10's of $'s
3V DC power supply	your favorite supplier	wall wart power supply					
adapter	Thorlabs	adapter for laser	AD12F	1	30	30	The exact adapter you need will depend on your laser module
fiber coupling lens	Thorlabs	FC connector fiber coupling lens	F220FC-780	1	160	160	
mount	Thorlabs	Kinematic mount	KC1-T	1	95	95	
adapter	Thorlabs	adapter for coupling lens	AD11F	1	29	29	
cage rods	Thorlabs	Cage assembly rod - 3" (4 pak)	ER3-P4	1	26	26	
plate	Thorlabs	Threaded Cage Plate	CP02	1	17	17	
lens tube	Thorlabs	Lens Tube 1"	SM1L05	1	13	13	
base	Thorlabs	base	BA1	1	6	6	
2" post	Thorlabs	2" post	TR2	1	5	5	
2" post holder	Thorlabs	2" post holder	PH2	1	8	8	
fiber patch cable	Fibertronics	1MM 62.5 miccron, duplex	PC-HH6D30V01M	1	7	7	
Fiber-Coupled Detectors (4-channel)							
Lens	Thorlabs	11mm fl, 780 nm, fiber-coupled lens	F220FC-780	4	160	640	
lens adapter	Thorlabs	adapter for coupling lens	ad11f	4	20	80	
1" mount for fiber lens	Thorlabs	kinematic mount	KM100T	4	67	268	
FC/PC to FC/PC Dual L-Bracket Mating Sleeve, Wide Key	Thorlabs	for swapping with alignment laser	ADAFCB2	5	56	280	
irises for defining downconversion beams	Thorlabs		ID12	4	47.69	190.76	
base	Thorlabs	base	BA1	8	6	48	
2" post	Thorlabs	2" post	TR2	4	5	20	
2" post holder	Thorlabs	2" post holder	PH2	8	8	64	
fiber patch cable				4	15	60	
Optical Filters (4-channel)							
Lens	Thorlabs	11mm fl, 780 nm, fiber-coupled lens	F220FC-780	8	160	1280	
lens adapter	Thorlabs	adapter for coupling lens	ad11f	8	20	160	
mount	Thorlabs	Kinematic mount	KC1-T	4	95	380	
lens tube	Thorlabs	SM1 lens tube, 1"	SM1L10	8	15	120	
plate	Thorlabs	Threaded Cage Plate	CP02	4	17	68	
cage rods	Thorlabs	Cage assembly rod - 4" (4 pack)	ER4-p4	4	27	108	
RG780 filter	Thorlabs	780 nm longpass filter in filtering unit	FGL780	4	42	168	
retaining ring	Thorlabs	For holding filters	SM1RR	8	5	40	
base	Thorlabs	base	BA1	4	6	24	
2" post	Thorlabs	2" post	TR2	4	5	20	
2" post holder	Thorlabs	2" post holder	PH2	4	8	32	
fiber patch cable	Fibertronics	1MM 62.5 miccron, duplex	PC-HH6D30V01M	4	7	28	
Grangier Experiment							
Polarizing beamsplitter	Thorlabs	use with half-waveplate to make adjustable beamsplitter	PBS122	1	200	200	
Polarizing beam splitter mount	Thorlabs		KM100PM	1	76	76	
Clamping arm for polarizing beam splitter mount	Thorlabs		PM3	1	19	19	
Down conversion half-wave plate	Newlightphotonics.com		WPA03-H-810	1	309	309	
rotation stage for half-wave plate	Thorlabs		RSP1D	1	95	95	
base	Thorlabs	base	BA1	2	6	12	
2" post	Thorlabs	2" post	TR2	2	5	10	
2" post holder	Thorlabs	2" post holder	PH2	2	8	16	
finished to here							
Single-Photon Interference							
Beam Displacing Polarizers	Thorlabs	4 mm beam displacement	BD40	2	670	1340	
Down conversion half-wave plate	Newlightphotonics.com	(need 3, have one from Grangier)	WPA03-H-810	2	309	618	
rotation stage for half-wave plate	Thorlabs		RSP1D	2	95	190	
beamdisplacing prism mounts	thorlabs	mount	km100	2	40	80	
Stepper motor and controller	thorlabs	stepper motor	z806	1	654	654	
cable	thorlabs	steepper controller	kdc101	1	677	677	
adapter	thorlabs	power supply	kps101	1	35	35	
base	Thorlabs	base	BA1	4	6	24	
2" post	Thorlabs	2" post	TR2	4	5	20	
2" post holder	Thorlabs	2" post holder	PH2	4	8	32	
Hardy/Bell							

Down-conversion crystals (double crystal)	Newlight Photonics	Paired BBO (2pcs) for photon entanglement, size 5x5x0.5 mm(each), cut for Type I PDC pumped by 405nm with the external half opening angle of 3 deg, theta=29.3deg., AR coated at 810/405 nm, mounted back-to-back with one crystal rotated by 90 degree about axis normal to incident face in an 1" anodized Al holder	PABBO5050-405(I)-HA3	1	1079	1079	
0.5mm BBO crystal	Newlight Photonics	x-cut 10x10x0.5 mm quartz substrate polished on 2 sides NOTE: for better results, replace this with thin BBO (optional equipment, below)	NCBBO5050-405(I)-HA	1	559	559	
rochon polarizer	Newlight Photonics		RPB0110	2	979	1958	
polarizer mounts	Thorlabs		KM100	2	40	80	
and phase plate mount	Thorlabs		KM100	1	40	40	
crystal mount	Thorlabs		KM100	1	40	40	
base	Thorlabs	base	BA1	4	6	24	
2" post	Thorlabs	2" post	TR2	4	5	20	
2" post holder	Thorlabs	2" post holder	PH2	4	8	32	
Quantum State Measurement							
Quarter-wave plates	Newlightphotonics.com		WPA03-Q-810	2	309	618	
rotation stage for quarter-wave plates	Thorlabs		RSP1D	2	95	190	
Tools							
spanner wrench	Thorlabs	for Aspheric optics	SPW301	1	15	15	
spanner wrench	Thorlabs	For SM1 lens tubes	SPW602	1	27	27	
spanner wrench	Thorlabs	For fiber coupling lens focus adjustment	SPW909	1	29	29	
fiber microscope	thorlabs	cleaning fibers	fs201	1	224	224	
fiber cleaner	thorlabs	Cleans fiber tips	fcc-7020	1	23	23	
SUB-TOTAL						**26833**	This cost includes the Digikey detectors, not the ALPhA detectors
Optional Equipment							
CCD Camera	maxmax.com	usb camera, IR sensitive	**XNiteUSB2S-M**	2	85	170	very useful for doing alignment. It lets you see the 800 nm alignment laser on your computer monitor
TAC	Ortec	Time-to-Amplitude Converter for observing timing of photon pairs (NOTE: you'll also need a NIM crate to plug this into--most labs have one lying around somewhere)					This is pretty old-school, you'll also need an MCA
TDC	s-fifteen.com	time-to digital converter	TDC1	1	1500	1500	Only $1,500, but also only 2ns resolution. **I've never used this**, but it should work if all you want to do is show that photon pairs come at the same time. You could also use this as your coincidence counter.
Green LED safe-lights							
TOTAL						**28503**	