Corrections

for

A Course in Functional Analysis

GTM 96

(Second edition, third printing)

by

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This is a list of corrections for my book *A Course in Functional Analysis* (Second Edition, Third Printing). These corrections were prepared for the fourth printing in June, 1996. I have a separate list of additions and changes that will appear in the next edition (if it ever comes to pass). I will mail this to you if you do not already have it. Write and ask for "Notes for a third edition." The following mathematicians have helped me to compile this list. R B Burckel, Keith Conrad, Nathan Feldman, Michael Gilbert, Pei-Yuan Wu.

I have a separate list of additions and changes that will appear in the next edition (if there is one). This is also available from my WWW page.

I would appreciate any further corrections or comments you have.

Notes in boldface are not part of the correction.

Page	Line	From	To
4	5	$\langle\cdot,\rangle$	$\langle\cdot,\cdot\rangle$
8	-8	$\inf\{\|\ \|h-k\|:$	$\inf\{\|h-k\|:$
13	11	$\langle h,h_0'\rangle=\langle h,h_0'\rangle$	$\langle h,h_0\rangle=\langle h,h_0'\rangle$
17	-16	$\mathcal{F}_c$	$\mathcal{F}_e$
23	7	$L^2[0,2\pi]$	$L^2_{\mathbb{C}}[0,2\pi]$
26	12	hase	have
33	16	analogous	analogues
60	1	$\tau(1)=1$, and	$\tau(1)=1$, $\langle\tau(\phi_k)x,y\rangle\to\langle\tau(\phi)x,y\rangle$ whenever $x,y\in\mathbb{H}$ and $\{\phi_k\}$ is a sequence in $\ell^\infty(\mathbb{C})$ such that $\phi_k(n)\to\phi(n)$ for all n and $\sup_k\|\phi_k\|<\infty$, and
65	5	function	functions
82	-12	exits	exists
88	13	for al x	for all x
88	-7	$\|(\mathrm{f}+g)\|\mathcal{M}\|$	$\|(f+g)\|\mathcal{M}\|$
101	-15	$tb+t)a:$	$tb+(1-t)a:$
108	16	(c) $x\mapsto\|f(x)\|$	(e) $x\mapsto\|f(x)\|$
112	-11	$((f,g))_p$	$((f-g))_p$
127	-14	$(^\circ B^\circ)$	$(^\circ B)^\circ$
131	13	$f=x^*\in$ ball	$x^*\in$ ball
136	-11	is separasble (c)	is separable; (c)
142	-16	propriety	property
169	10	$=c\|x\|.$	$=c^{-1}\|x\|.$
178	-1	P Enflo	P Enflo
179	1	B Beauzamy	B Beauzamy
195	10	$\|a-a_0\|\langle\|b_0\|^{-1}$	$\|a-a_0\|<\|b_0\|^{-1}$
198	17	$(\beta-\alpha)(\beta-\alpha)^{-1}(\alpha-a)^{-1}$	$(\beta-\alpha)(\beta-a)^{-1}(\alpha-a)^{-1}$
199	-12	result	results
201	10	$\sigma(a)\subseteq\operatorname{ins}\Gamma$	$\sigma(a)\subseteq\operatorname{ins}\Gamma\subseteq G$
201	10	$\sigma(a)\subseteq\operatorname{ins}\Lambda$	$\sigma(a)\subseteq\operatorname{ins}\Lambda\subseteq G$
217	14-16	**Can these lines be fixed, even with a strange break at an equal sign or between** dim **and** ker**.**	
217	-10	finit	finite
221	14	$h_1(a'')=h_2(a'')$	$h_1(a^n)=h_2(a^n)$
238	4	**Label this display 2.4 – in boldface, no parentheses, on the left margin.**	
256	-12	$\langle A,h,k\rangle$	$\langle A_ih,k\rangle$
256	-10	$\langle A,h,k\rangle$	$\langle A_ih,k\rangle$
257	6	$\langle M_{\phi_i},f,g\rangle$	$\langle M_{\phi_i}f,g\rangle$
263	12-13	**Bad line break.** Put $E(\Delta)$ and A on the same line.	
275	-19	$\operatorname{Lat}A^{(n)}\subseteq$	$\operatorname{Lat}\mathcal{A}^{(n)}\subseteq$
283	-4	bases	basis
306	-4	$g+H\perp$	$g+iH\perp$
322	-7	and (4.6).	and (4.6). Also, by (4.7.a), $E(\Delta)h\in\operatorname{dom}N_\phi$ if $h\in\operatorname{dom}N_\phi$.
323	1	$\rho(\phi)\rho(\psi)=\rho(\psi)\rho(\phi)=\rho(\phi\psi)$	$\rho(\phi)\rho(\psi)=\rho(\phi\psi)$
323	14	$E(\Delta)\mathcal{H}=$	$E(\Delta)\mathcal{H}\subseteq$
323	-16 to -15	Delete the sentence "To facilitate … (4.2)" and substitute the following. The difficulty is that this may not be a linear subspace of $\mathcal{H}$. To bypass this inconvenient truth we consider the operator $(1+N^*N)^{-1}$. We will then use this bounded positive operator and its spectral projection to give a direct sum decomposition of N as the direct sum of bounded normal operators.	

325	-10	cl $[\bigcup_{n=1}^{\infty} \sigma(N_n)]$	$[\bigcup_{n=1}^{\infty} \sigma(N_n)]$
325	-9	show that $[\bigcup_{n=1}^{\infty} \sigma(N_n)] \subseteq \sigma(N)$.	show that $[\bigcup_{n=1}^{\infty} \sigma(N_n)]$ is a closed subset of $\sigma(N)$.
327	6	Theorem 4.10.	Theorem 4.10. In part (c) what can be said about the relationship of $\rho(\psi)\rho(\phi)$ and $\rho(\phi\psi)$?
327	10	Delete Exercise 5 and renumber the remaining exercises.	
327	14	$E(\Delta)\mathcal{H} =$	$E(\Delta)\mathcal{H} \subseteq$
332	-10	e^{-1}	e^{-t}
332	-8	e^{-1}	e^{-t}
337	15	$(ix)^m \left(\frac{d}{dx}\right) \hat{\phi}$	$(ix)^m \left(\frac{d}{dx}\right)^n \hat{\phi}$
350	14	sequences	sequence
350	19	$\mathcal{B}_0(\mathcal{H})$	$\mathcal{B}_0(\mathcal{H}, \mathcal{H}')$
354	-15	$\dim (\mathcal{M} + \mathcal{N})^{\perp} < \infty$	$\dim (\mathcal{M} + \mathcal{N})^{\perp} = \infty$
372	11	set	net
381	2	vctor	vector
392	10	$\mathcal{X}^*$ 75	$\mathcal{X}^*$ 74
399		sesquilinear form, 31	sesquilinear form, 31, 344
399		σ-compact, 106	σ-compact, 106, 136
399		spectral measure, 256,264	spectral measure, 256,264, 321
399		topologically complimentary, 11,94,122	topologically complimentary, 11,94, 122,213